SONY®

Digital Recording Binoculars
Handbook
DEV-3/5/5K
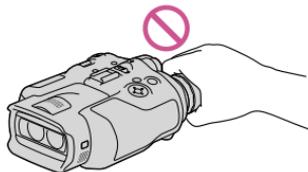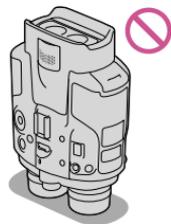
4-410-129-**12**(1)

GB
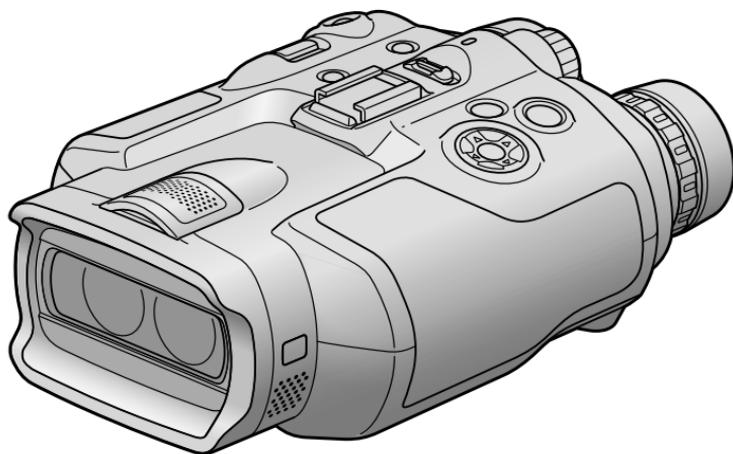
Read this first

Using this product

- Do not hold this product by the following parts, and also do not hold this product by the jack covers.

Viewfinder

- Do not put this product with the viewfinder facing down.

- This product is not dustproofed, dripproofed or waterproofed. See "About handling of this product" (p. 89).

Menu items, viewfinder, and lens

- A menu item that is grayed out is not available under the current recording or playback conditions.
- The viewfinder is manufactured using extremely high-precision technology, so over 99.99% of the pixels are operational for effective use. However, there may be some tiny black points and/or bright points (white, red, blue, or green in color) that appear constantly in the viewfinder. These points are normal results of the manufacturing process and do not affect the recording in any way.
- Exposing the viewfinder or the lens to direct sunlight for long periods of time may cause malfunctions.

- Do not aim at the sun. Doing so might cause this product to malfunction. Take images of the sun only in low light conditions, such as at dusk.

About language setting

- The on-screen displays in each local language are used for illustrating the operating procedures. Change the screen language before using this product if necessary (p. 18).

On recording

- To ensure stable operation of the memory card, it is recommended to format the memory card with this product before the first use (p. 65). Formatting the memory card will erase all the data stored on it and the data will be irrecoverable. Save your important data on your PC etc.
- Before starting to record, test the recording function to make sure the image and sound are recorded without any problems.
- Compensation for the contents of recordings cannot be provided, even if recording or playback is not possible due to a malfunction of this product, memory card, etc.
- TV color systems differ depending on the country/region. To view your recordings on a TV, set [60i/50i Sel] to the setting required in your country/region before recording (p. 16).
- Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the copyright laws.
- Because of the way that the image device (CMOS sensor) reads out image signals, the following phenomena may occur.
  - The subjects passing by the frame rapidly might appear crooked depending on the recording conditions. (This phenomenon may be notable in displays having high motion resolution.)
  - Horizontal lines appear on the screen during recording under fluorescent lights. The phenomena can be reduced by adjusting the shutter speed (p. 58).

– Images on the screen look horizontally divided when a subject is lighted with a flash. The phenomena can be reduced by using a slower shutter speed.
- Use this product in accordance with local regulations.
- See page 18 for the memory card you can use with this product.

Notes on playing back

- You may not be able to play back normally images recorded on this product with other devices. Also, you may not be able to play back images recorded on other devices with this product.

DVD media recorded with high definition image quality

- DVD media recorded with high definition image quality can be played back with devices that are compatible with the AVCHD standard. You cannot play discs recorded with high definition image quality with DVD players/recorders as they are not compatible with the AVCHD format. If you insert a disc recorded with the AVCHD format (high definition image quality) into a DVD player/recorder, you may not be able to eject the disc.

Save all your recorded image data

- To prevent your image data from being lost, save all your recorded images on external media periodically. To save images on your computer, see page 37, and to save images on external devices, see page 43.
- The type of discs or media on which the images can be saved depend on the [🎥 REC Mode] selected when the images were recorded. Movies recorded with [60p Quality $\overline{\mathbf{PS}}$] ([50p Quality $\overline{\mathbf{PS}}$]) or [Highest Quality $\overline{\mathbf{FX}}$] can be saved on external media devices or on Blu-ray discs (p. 45).

Notes on battery pack/AC Adaptor

- Be sure to remove the battery pack or the AC Adaptor after turning off this product.
- Disconnect the AC Adaptor from this product, holding both this product and the DC plug.

Note on the binoculars/battery pack temperature

- When the temperature of this product or battery pack becomes extremely high or extremely low, you may not be able to record or play back on this product, due to the protection features of this product being activated in such situations. In this case, an indicator appears on the screen (p. 78).

When this product is connected to a computer or accessories

- Do not try to format the memory card of this product using a computer. If you do so, this product may not operate correctly.
- When connecting this product to another device with communication cables, be sure to insert the connector plug in the correct way. Pushing the plug forcibly into the terminal will damage the terminal and may result in a malfunction of this product.

If you cannot record/play back images, perform [Format]

- If you repeat recording/deleting images for a long time, fragmentation of data occurs on the memory card. Images cannot be saved or recorded. In such a case, save your images on some type of external media first, and then perform [Format] by selecting MENU (MENU) → [Setup] → [🗂 (🗂 Media Settings)] → [Format] → OK → OK .

Notes on optional accessories

- We recommend using genuine Sony accessories.
- Genuine Sony accessories may not be available in some countries/regions.

About this manual, illustrations and on-screen displays

- The example images used in this manual for illustration purposes are captured using a digital still camera, and therefore may appear different from images and screen indicators that actually appear on this product. And, the illustrations of this product and its screen indication are exaggerated or simplified for understandability.
- In this manual, the DVD disc recorded with high definition image quality is called AVCHD recording disc.
- Design and specifications of this product and accessories are subject to change without notice.

Viewing 3D video images

- Some people may experience discomfort (such as eye strain, fatigue, or nausea) while watching 3D video images.
  Sony recommends that all viewers take regular breaks while watching 3D video images. The length and frequency of necessary breaks will vary from person to person. You must decide what works best.
  If you experience any discomfort, you should stop watching the 3D video images until the discomfort ends; consult a doctor if you believe necessary.
  You should also review the instruction manual of any other device or media used with this product.
  The vision of young children (especially those under six years old) is still under development. Consult your doctor (such as a pediatrician or eye doctor) before allowing young children to watch 3D video images.
  Adults should supervise young children to ensure they follow the recommendations listed above.

Notes on use

- Be careful of your surroundings when using this product. Especially, do not use this product while walking. Doing so may cause accidents or injury.
- Do not do any of the following. Otherwise, the memory card may be damaged, recorded images may be impossible to play back or may be lost, or other malfunctions could occur.
  – ejecting the memory card when the access lamp (p. 19) is lit or flashing
  – removing the battery pack or AC Adaptor from this product, or applying mechanical shock or vibration to this product when the ▤ (Movie)/● (Photo) lamps (p. 22) or the access lamp (p. 19) are lit or flashing
- When using the neck strap, do not carry this product on your back. Doing so may cause injury. And do not allow this product to knock against another object.

About manuals for this product

Two manuals have been prepared for this product, the "Operating Guide" and the "Digital Recording Binoculars Handbook (PDF)." The "Operating Guide" introduces basic operations and the "Digital Recording Binoculars Handbook (PDF)" explains details of functions.

Operating Guide

This manual introduces the basic operations of this product, such as recording and playback.

Digital Recording Binoculars Handbook (PDF)

This manual explains various operations, such as how to use the setting menu and how to save images on other devices.

How to read Digital Recording Binoculars Handbook (PDF)

Install the "Digital Recording Binoculars Handbook" on your computer from the supplied CD-ROM.

- For a Windows computer
  When the installation screen appears, click [Handbook] → the desired language and the model name → [Install], and follow the on-screen instructions to install the Handbook. The short-cut icon is created on the computer screen.
- For a Mac
  Open the [Handbook] - [GB] folder on the CD-ROM, then copy [Handbook.pdf] to your computer.
- You need Adobe Reader to read the "Digital Recording Binoculars Handbook." If it is not installed on your computer, you can download it from the Adobe Systems web page.
  http://www.adobe.com/

Table of contents

Saving movies and photos with a computer

Saving images with an external device

Customizing this product

Additional information

Quick reference

Step 1: Checking the supplied items

When opening the box for the first time, make sure that all of the supplied items listed below are included. The numbers in ( ) are the supplied quantity.

Items	DEV-3	DEV-5	DEV-5K
☐ Digital Recording Binoculars (1)	✓	✓	✓
☐ Carrying case (1)	–	✓	✓
☐ Neck strap (1)	✓	✓	✓
☐ Lens cover (1)	–	✓	✓
☐ Finder cap (1)	–	✓	✓
☐ Large eyecup (2)	–	✓	✓
☐ AC Adaptor/Battery charger (AC-VQV10) (1)	–	–	✓
☐ Connecting cord (DK-225) (1)	–	–	✓
☐ AC Adaptor (AC-L200) (1)	✓	✓	–
☐ Power cord (Mains lead) (1)	✓	✓	✓
☐ Rechargeable battery pack (1)	NP-FV70	NP-FV70	NP-FV100
☐ A/V connecting cable (1)	✓	✓	✓
☐ Component A/V cable (1)	–	–	✓
☐ USB cable (1)	✓	✓	✓
☐ USB Adaptor Cable (1)	–	–	✓
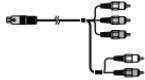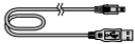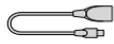
Items	DEV-3	DEV-5	DEV-5K

☐ CD-ROM Video Camera Application Software (1)
   – "PMB" (software, including "PMB Help")
   – Digital Recording Binoculars Handbook (PDF)
	✓	✓	✓

☐ "Operating Guide" (1)	✓	✓	✓

Attaching the supplied items

Attaching the neck strap

To avoid dropping this product, attach the neck strap to the binoculars following the steps below.

Insert one end of the neck strap into the strap mount on the binoculars. Then, fasten the neck strap, placing the end of the neck strap into the clasp.
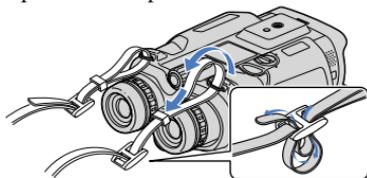
Attaching the lens cover (DEV-5/5K)

When you do not intend to use this product, store this product with the lens cover attached.
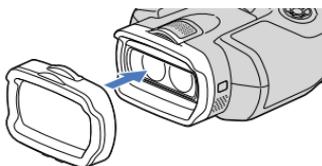
You can use this product with the lens cover attached.
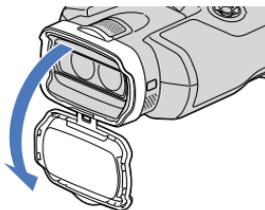
Attaching the large eyecup (DEV-5/5K)

If you cannot see the picture in the viewfinder clearly under bright light, use the large eyecup.

Align the large eyecup with the eyecup groove in the viewfinder.
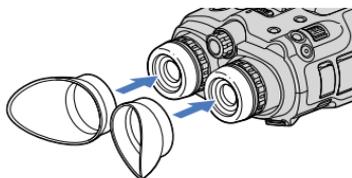
Attaching the finder cap (DEV-5/5K)

When you do not intend to use this product, store this product with the finder cap attached.

You can attach the finder cap to the neck strap as illustrated when it is not being used.

Step 2: Charging the battery pack

You can charge the "InfoLITHIUM" battery pack (V series).

ⓘ Notes
- You cannot use any "InfoLITHIUM" battery pack other than NP-FV70/FV100 to this product.
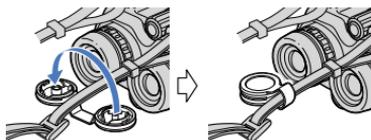
Charging the battery pack installed into this product

1 Set the POWER switch to OFF (CHG) by pressing the green button.
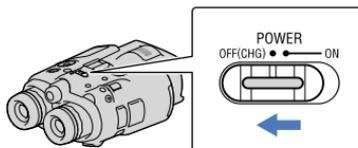
2 Turn the battery cover lock to OPEN and open the battery cover.
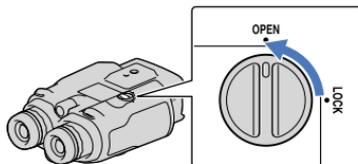
3 Align the battery with the groove in the battery compartment (①), and slide the battery until it clicks (②).
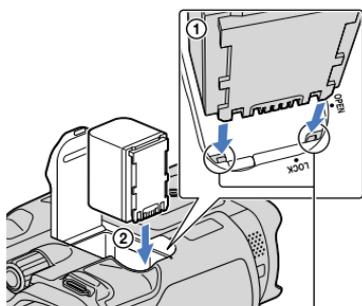
Align the battery with the groove.

4 Close the battery cover and turn the battery cover lock to LOCK.

5 DEV-3/5:
Connect the AC Adaptor and the power cord (mains lead) to this product and the wall outlet (wall socket).

CHG (charge) lamp

DC IN jack

DC plug

To the wall outlet (wall socket)

Power cord (mains lead)
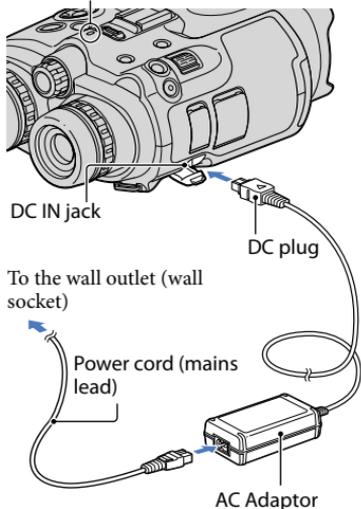
AC Adaptor

DEV-5K:
Connect the power cord and the connecting cord (DK-225) to the AC Adaptor/Charger.

• Set the mode switch on the AC Adaptor/ Charger to VCR/CAMERA.

CHG (charge) lamp

DC IN jack

DC plug

To the wall outlet (wall socket)

Power cord (mains lead)

Mode switch

DC OUT jack

Connecting cord (DK-225)
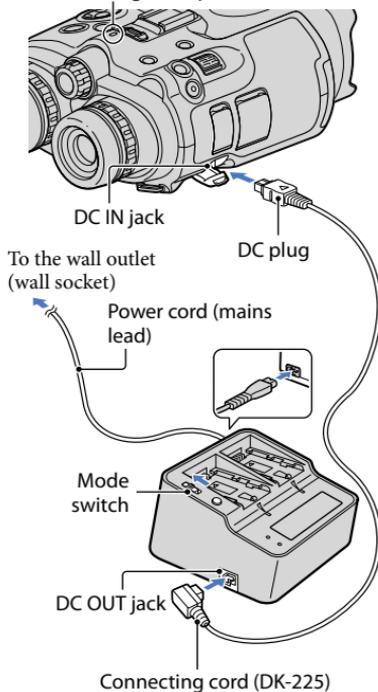
The CHG (charge) lamp lights up and charging starts. The CHG (charge) lamp turns off when the battery pack is fully charged.

6 When the battery is charged, disconnect the AC Adaptor from the DC IN jack of this product.

Charging the battery pack using the AC Adaptor/Charger (DEV-5K)

The AC Adaptor/Charger can charge the battery pack faster than charging it with this product.

Power cord (mains lead)

To the wall outlet (wall socket)

CHARGE lamp

Mode switch

1 Set the mode switch on the AC Adaptor/Charger to CHARGE.

2 Connect the power cord (mains lead) to the AC Adaptor/Charger.

3 Connect the power cord (mains lead) to a wall outlet (wall socket).

4 Attach the battery pack to the AC Adaptor/Charger by sliding it in the direction of the arrow.

The CHARGE lamp lights up and charging starts.
When charging is complete, the battery mark is displayed (⚡).

If you continue to charge the battery after normal charging is complete until the battery mark shows "FULL," the battery pack can be used slightly longer than when in the normal charged state.

Charging time

Approximate time (min.) required when you fully charge a fully discharged battery pack.

Charging with this product

Battery pack	Charging time
NP-FV70	195
NP-FV100	390

Charging with AC Adaptor/Charger (supplied with DEV-5K)

Battery pack	Charging time (NORMAL)	Charging time (FULL)
NP-FV70	70	130
NP-FV100	125	185

• The charging times shown in the table above are measured when charging this product at a temperature of 25 °C (77 °F). It is recommended that you charge the battery in a temperature range of 10 °C to 30 °C (50 °F to 86 °F).

💡 Tips

• See page 81 on recording and playing time.
• When this product is on, you can check the approximate amount of remaining battery power (expected recording and playing time) with the remaining battery indicator at the upper right on the screen.

To use a wall outlet (wall socket) as a power source

Make the same connections as "Step 2: Charging the battery pack" (p. 11). Even if the battery pack is installed, the battery pack is not discharged.

To remove the battery pack

① Set the POWER switch to OFF (CHG).
② Open the battery cover (p. 11).
③ Slide the battery release lever and remove the battery.
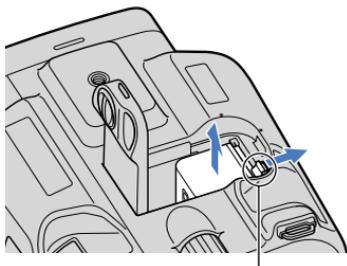
Battery release lever

Charging the battery pack abroad

You can charge the battery pack in any countries/regions using the AC Adaptor (supplied with DEV-3/5) or the AC Adaptor/Charger (supplied with DEV-5K) within the AC 100 V - 240 V, 50 Hz/60 Hz range.

Notes
• Do not use an electronic voltage transformer.

Notes on the battery pack

• When you remove the battery pack or disconnect the AC Adaptor, turn this product off and make sure that the 🎬 (Movie)/📷 (Photo) lamps (p. 22), the access lamp (p. 19) are turned off.

• The CHG (charge) lamp flashes during charging under the following conditions:
   – The battery pack is not installed correctly.
   – The battery pack is damaged.
   – The temperature of the battery pack is low. Remove the battery pack from this product and put it in a warm place.
   – The temperature of the battery pack is high. Remove the battery pack from this product and put it in a cool place.

Notes on the AC Adaptor

• Use the nearby wall outlet (wall socket) when using the AC Adaptor. Disconnect the AC Adaptor from the wall outlet (wall socket) immediately if any malfunction occurs while using this product.
• Do not use the AC Adaptor placed in a narrow space, such as between a wall and furniture.
• Do not short-circuit the DC plug of the AC Adaptor or battery terminal with any metallic objects. This may cause a malfunction.

Step 3: Turning the power on, and setting up this product

Notes

- Do not turn the power on with the USB cable connected.
- Do not connect the USB cable until the following procedure is completed.

1 Set the POWER switch to ON by pressing the green button.

This product is turned on.
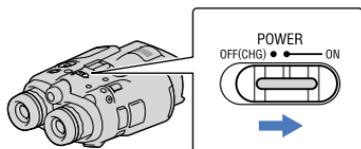
2 Adjust the diopter until you can see a clear image with each eye by turning the diopter adjustment dial.
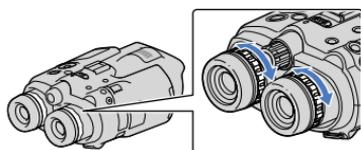
- If this product is used by more than one person, adjust the diopter each time the user changes.
- Adjust the diopter for each eye separately.

3 Pull out the IPD ADJ dial.
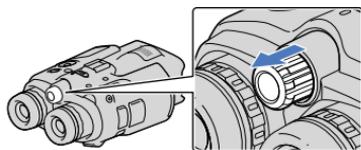
4 Adjust the width between the left and right viewfinder to fit your eyes using the IPD ADJ dial.
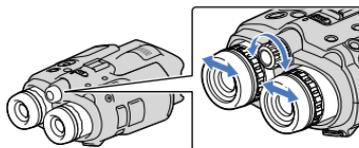
- Adjust the width so that left and right images overlap.
- Make sure that the image in the viewfinder does not look like it has a double image.
- If this product is used by more than one person, adjust the width each time the user changes.

5 Push the IPD ADJ dial back into this product.

6 Set the language, area, summer time, date & time format, and date & time using the ▲/▼/◀/▶/ Enter button, then confirm each setting.

Enter button
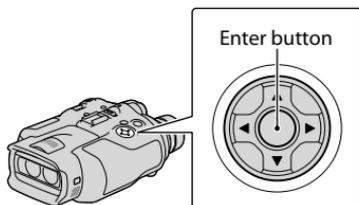
When each setting have been completed, select [Next] and press Enter.

• To set the date and time again, select **MENU** (MENU) → [Setup] → [⏱ (⏱Clock Settings)] → [Date & Time Setting] → [Date & Time]. When [Date & Time] is not on the screen, press ▼/▲ until the item appears.

---

7 Select [60i (NTSC)] or [50i (PAL)] to suit the TV color system used in your country/region, then press Enter.

When the 60i/50i selection is made, this product restarts to update the system.

• See page 84 for details on the TV color system in your country/region.

```
60i/50i Sel

Please select the TV format of the
region this device is used in.

[ 60i (NTSC) ]   [ 50i (PAL) ]
[ Back ]                  [ OK ]
```

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8 Confirm the warning about continuous use and the warning about viewfinder adjustment, then select [Next].

---

9 Adjust the relative vertical position of the right and left viewfinder.

Make sure that the horizontal line overlaps the vertical lines.

Image in the left viewfinder   Image in the right viewfinder
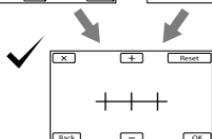
Image viewed by both eyes

If the horizontal line and the vertical lines do not overlap, adjust the position of the image in the right viewfinder by selecting ⊞/⊟ until the lines overlap, then select OK.

• If you see the image below, the device works correctly.
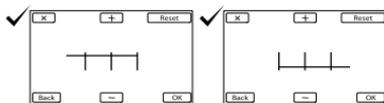
• If you see the image below, stop using this product.
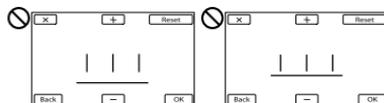
The horizontal line and the vertical lines do not overlap.

The horizontal line is extremely tilted.

If you cannot see images correctly, this product may be damaged. Contact your Sony dealer or local authorized Sony service facility.

10 Select [Run].

```
                    STBY

  Auto 3D Lens Adjust

  Perform Auto 3D Lens Adjust to shoot 3D
  images that are easy to view.

    Run        Run Later      Cancel
```

- If you select [Run Later], the recording mode screen appears. When you turn on this product next time, the [Auto 3D Lens Adjust] screen will appear.

11 Adjust the 3D lens.

Aim this product at a subject to display it on the screen.

- Be sure that the subject produces a scale higher than the ◄ mark.

```
  ✕  Auto 3D Lens Adjust      Cancel       OK



     │
     │◄
     │
         Press OK when the
         indicator exceeds ◄.
```
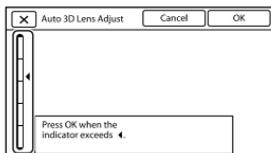
Scale

12 Select OK.

- Do not change the subject until the adjustment is completed.

Notes
- If this product failed [Auto 3D Lens Adjust], select [Run Again].

Type of subjects that should be displayed on the screen for [Auto 3D Lens Adjust]

The scale indicated varies depending on the subject displayed on the screen.

Subjects that indicate a higher scale:
- – Bright subjects, such as objects outdoors in daylight
- – Subjects with various colors and shapes

Subjects that indicate a lower scale and result in adjustment failure:
- – Dark subjects, such as objects viewed at night
- – Subjects within 2 m (6 ft. 6 3/4 in.) away from this product
- – Plain, non-colorful subjects
- – Subjects that repeat the same pattern, such as rows of windows on buildings
- – Moving subjects

Notes
- You may see primary colors, red, blue, or green, shimmering in the viewfinder when you move your line of sight. This is not a malfunction. The shimmering colors will not be recorded on the memory card.
- The date and time does not appear during recording, but they are automatically recorded on the memory card, and can be displayed during playback. To display the date and time, select MENU (MENU) → [Setup] → [► (► Playback Settings)] → [Data Code] → [Date/Time] → OK.

To turn off the power

Set the POWER switch to OFF (CHG). The 🎬 (Movie) lamp flashes for a few seconds and this product is turned off.

Changing the language setting

You can change the on-screen displays to show messages in a specified language. Select 𝗠𝗘𝗡𝗨 (MENU) → [Setup] → [🔧 (🔧 General Settings)] → [Language Setting] → a desired language → OK → ✕ → ✕.

Step 4: Inserting a memory card

Types of memory card you can use with this product

– "Memory Stick PRO Duo" media (Mark2) – "Memory Stick PRO-HG Duo" media	– SD memory card* – SDHC memory card* – SDXC memory card*
SONY	SONY
Described in this manual, "Memory Stick PRO Duo" media	Described in this manual, SD card

* SD Speed Class 4 or faster is required.
• Operation with all memory cards is not assured.
• "Memory Stick PRO Duo" media, half the size of "Memory Stick", or standard size SD cards can be used for this product.
• Do not attach a label or the like on memory card or memory card adaptor. Doing so may cause a malfunction.
• "Memory Stick PRO Duo" media of up to 32 GB and SD cards of up to 64 GB have been verified to operate with this product.

⊕ Notes
• A MultiMediaCard cannot be used with this product.
• Movies recorded on SDXC memory cards cannot be imported to or played back on computers or AV devices not supporting the exFAT* file system by connecting this product to these devices with the USB cable. Confirm in advance that the connecting equipment is supporting the exFAT system. If you connect an equipment not supporting the exFAT system and the format screen appears, do not perform the format. All the data recorded will be lost.
* The exFAT is a file system that is used for SDXC memory cards.

1 Open the cover, and insert the memory card with the nothched edge in the direction as illustrated until it clicks.

- Close the cover after inserting the memory card.

Access lamp
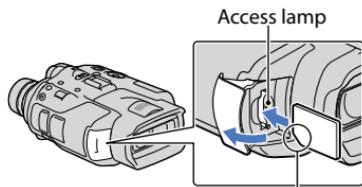
Note the direction of notched corner.

The [Preparing image database file. Please wait.] screen appears if you insert a new memory card. Wait until the screen disappears.

2 Close the cover.

⊘ Notes

- If [Failed to create a new Image Database File. It may be possible that there is not enough free space.] is displayed, format the memory card (p. 65).
- Confirm the direction of the memory card. If you forcibly insert the memory card in the wrong direction, the memory card, memory card slot, or image data may be damaged.
- Do not open the cover during recording.
- When inserting or ejecting the memory card, be careful so that the memory card does not pop out and drop.

To eject the memory card

Open the cover and lightly push the memory card in once.

Using this product as binoculars

1 Set the POWER switch to ON by pressing the green button.

This product is turned on.
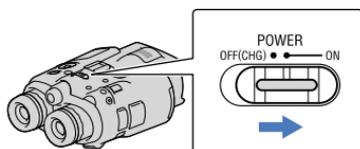
Some settings screen may appear depending on the status of this product when it is turned on. Use this product after completing any necessory adjustments.

2 Make sure that the diopter, the width, and the relative vertical position of the right and left viewfinder fit you (p. 15).

3 Hold this product with both hands and aim it at the subject.
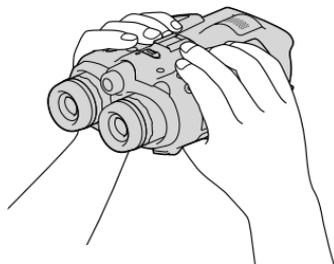
- You can magnify images with the power zoom lever.
- This product adjusts the focus automatically with the auto-focus function (default setting).

💡 Tips

- [🎥 SteadyShot] is set to [Active] in the default setting.

About zooming

Magnifications available are as follows.

Binoculars magnification (approx.)

	DEV-3	DEV-5/5K
Movie recording (2D mode)*1	0.8 × to 10 ×	0.8 × to 20 ×*2 0.8 × to 10 ×*3
Movie recording (3D mode)*1	0.5 × to 5.4 ×	0.5 × to 5.4 ×
Photo recording	0.5 × to 10 × (16:9) 0.3 × to 7.5 × (4:3)	0.5 × to 20 ×*4 (16:9) 0.3 × to 15 ×*4 (4:3)

Zoom ratio (approx.)

	DEV-3	DEV-5/5K
Movie recording (2D mode)	12 ×	24 ×*2 12 ×*3
Movie recording (3D mode)	10 ×	10 ×
Photo recording	22 ×	44 ×*4

*1 [🎥 SteadyShot] is set to something other than [Active]

*2 [Digital Zoom] is set to [On] (The image quality decreases when you use the large magnification)

*3 [Digital Zoom] is set to [Off]

*4 The image quality decreases when you use the large magnification

Tips

- The binoculars magnification indicates how big the subject looks with the binoculars compared with your naked eye.
- The zoom ratio indicates the ratio of the focal lengths between the minimum and maximum value.

Wider range of view (Wide angle)

Close view (Telephoto)

Move the power zoom lever slightly for a slower zoom. Move it further for a faster zoom.

Notes

- Be sure to keep your finger on the power zoom lever. If you move your finger off the power zoom lever, the operation sound of the power zoom lever may also be recorded.

To adjust the focus manually

① Select MENU (MENU) → [Camera/Mic] → [🔳 (🔳 Manual Settings)] → [Focus] using the ▲/▼/◄/►/Enter buttons.

② Select 🔳 (nearby subject)/ 🔳 (distant subject) and press Enter several times to adjust the focus.

Tips

- To adjust the focus automatically, select [Auto].

To switch the viewfinder display between 2D and 3D

Press FINDER 2D/3D to switch the viewfinder display between 2D and 3D.
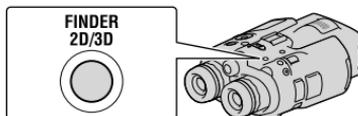
Tips

- In the 3D display mode for the viewfinder, this product displays the image from the left lens in the left viewfinder, and the image from the right lens in the right viewfinder. In the 2D display mode, this product displays the image from the left lens in both the left and right viewfinder.

Recording

In the default setting, images in the viewfinder are displayed in 3D (p. 21), but movies are recorded in 2D.

Set the POWER switch to ON by pressing the green button.

This product is turned on.

Recording movies

1 Press MODE to turn on the 🎥 (Movie) lamp.

MODE button
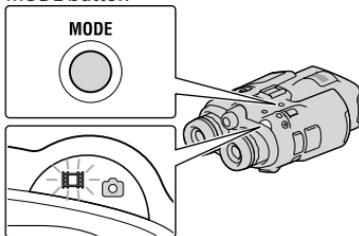
🎥 (Movie): When recording a movie
📷 (Photo): When recording a photo

2 Press START/STOP to start recording.
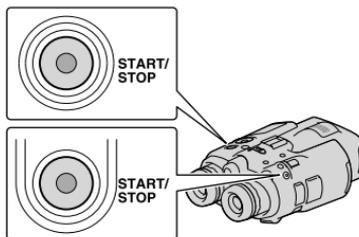
[STBY] → [REC]
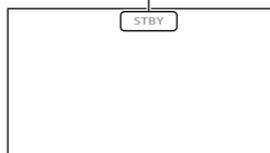
The recording lamp lights in red during recording.
To stop recording, press START/STOP again.

To display items on the screen again

Press the ▲/▼/◄/►/Enter buttons or any other button. You can change the settings using the [Display Setting] menu (p. 62).

⚠ Notes

- The maximum continuous recordable time of a movie is as follows.
  - 2D: about 13 hours
  - 3D: about 6 hours 30 minutes
- When a movie file exceeds 2 GB, the next movie file is created automatically.
- It will take several seconds until you can start recording after you turn on this product. You cannot operate this product during this time.

- The following states will be indicated if data is still being written onto the memory card after recording has finished. During this time, do not apply shock or vibration to this product, or remove the battery or AC Adaptor.
  – Access lamp (p. 19) is lit or flashing
  – The media icon in the upper right of the screen is flashing

💡 Tips
- See page 82 on the recordable time of movies.
- You can check the recordable time, estimated remaining capacity, etc., by selecting 🄼🄴🄽🅄 (MENU) → [Setup] → [🖐 (🗃 Media Settings)] → [Media Info].

To switch the 2D and 3D recording mode

You can select a recording mode of either 2D or 3D.
To switch 2D and 3D, select 🄼🄴🄽🅄 (MENU) → [Image Quality/Size] → [2D/3D Mode Select].

💡 Tips
- When you change the [2D/3D Mode Select] setting, movies played back on this product and movies output from the HDMI OUT jack are changed between 2D and 3D automatically.

Optimum distance from the subject and zooming level

The distance at which you can obtain good 3D movies varies depending on the zooming level.

Distance from the subject	Zoom
about 80 cm to 6 m (3 ft. to 20 ft.)	W▇▭▭▭T
about 2.5 m to 10 m (8 ft. to 32 ft.)	W▭▇▭▭T
about 7.5 m to 20 m (25 ft. to 65 ft.)	W▭▭▇▭T

🔴 Notes
- When you record 3D movies, the binocular magnification can be set to up to about 5 times. If you want to monitor* or record a subject using a larger image, set [2D/3D Mode Select] to [2D].
* In this manual, "monitor" means that the user watches or views a subject without recording.

Data code during recording

The recording date, time, condition and coordinates (DEV-5/5K) are recorded automatically on the memory card. They are not displayed during recording. However, you can check them as [Data Code] during playback. To display them, select 🄼🄴🄽🅄 (MENU) → [Setup] → [▶ (▶ Playback Settings)] → [Data Code] → a desired setting → OK → OK.

Shooting photos

1 **Press MODE to turn on the 📷 (Photo) lamp.**

The screen display switches for photo recording mode.
MODE button

🎞(Movie): When recording a movie
📷(Photo): When recording a photo

GB
23

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Menu Lists

Index

2 Press PHOTO lightly to adjust the focus, then press it fully.
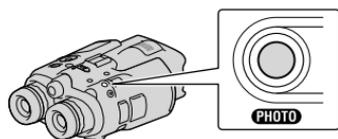
Flashes → Lights up
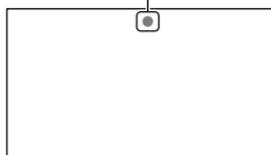
When IIIIII disappears, the photo is recorded.

Note
• You cannot shoot photos in 3D. Select **MENU** (MENU) → [Image Quality/Size] → [2D/3D Mode Select] → [2D].

Tips
• See page 82 on the recordable number of photos.
• To change the image size, Select **MENU** (MENU) → [Image Quality/Size] → [📷 Image Size] → a desired setting → **OK** .
• You cannot record photos while 📷 is displayed.

Playback on this product

You can play back images recorded with this product.

Tips
• If you want to play back 3D images, set [2D/3D Mode Select] to [3D].

1 Set the POWER switch to ON by pressing the green button.

This product is turned on.

2 Press ▶ (View Images).
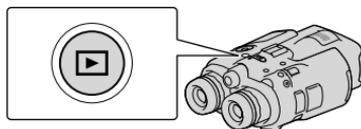
The Event Index screen appears after some seconds.

3 Select an image you want to view using ▲/▼/◀/▶, then press Enter.

Playback starts.
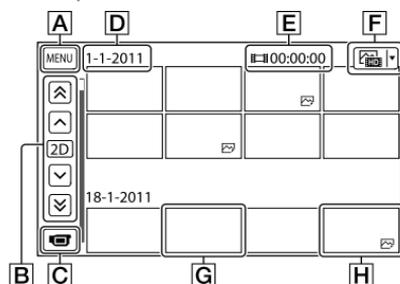
A To the MENU screen
B ∧ previous image/∨ next image ∧ previous event/∨ next event
C Change to the movie/photo recording mode
D Event title

E Total time of movies/Total number of photos in the event

F Switch Image Type button (2D only) (⊞MOVIE, ⊠PHOTO, ⊠MOVIE/PHOTO*)

G Movie

H Photo

* If you start playback from the [⊠MOVIE/PHOTO] screen, movies and photos are played back in the mixed order by shooting date and time.

• This product organizes images into a group that is called an event, based on the date and time, and information on how often you record images.

Operations available on the playback display
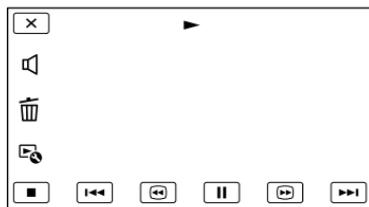
⏸ ▶	Pause/Play
■	Stop
⏮ ⏭	Previous/Next image
⏪ ⏩	Fast-reverse/Fast-forward
⏫	Play slide show
⊲	Volume
🗑	Delete
⊡	Context

• Some buttons may not be displayed depending on the playback image.

⊘ Notes
• You may not be able to play back the images with other devices than this product.

❤ Tips
• When playback from the selected image reaches the last image, the screen returns to the INDEX screen.
• Select ◀Ⅰ/Ⅰ▶ during pause to play back movies slowly.
• As you repeat pressing Enter after selecting ⏪ / ⏩ during playback, movies are played as fast as about 5 times → about 10 times → about 30 times → about 60 times.
• The recording date, time, and shooting conditions are recorded automatically during recording. This information is not displayed during recording, but you can display it during playback by selecting MENU (MENU) → [Setup] → [▶ (▶ Playback Settings)] → [Data Code] → a desired setting → OK → ✕ → ✕.
• To play a Slideshow, select [⊠PHOTO] from the Switch Image Type button on the Event Index screen. To repeat Slideshow, select ⊡ → [Slideshow Set].

Playing images on a TV

Connection methods, the image type (3D or 2D) and the image quality (high definition or standard definition) viewed on the TV screen differ depending on what type of TV is connected, and the connectors used.

Output connectors on this product

A/V Remote Connector

HDMI OUT jack

1 Switch the input on the TV to the connected jack.
• Refer to the instruction manuals of the TV.

2 Connect this product to a TV.
• Use the supplied AC Adaptor as the power source (p. 14).

3 Play a movie or a photo on this product (p. 24).
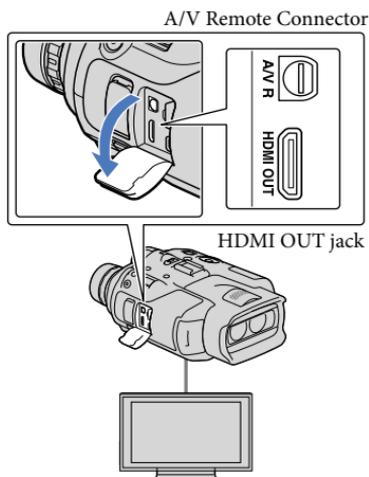
List of connection

Connecting to a 3D TV

Movies recorded in 3D are played back in 3D. Make sure that [2D/3D Mode Select] is set to [3D].
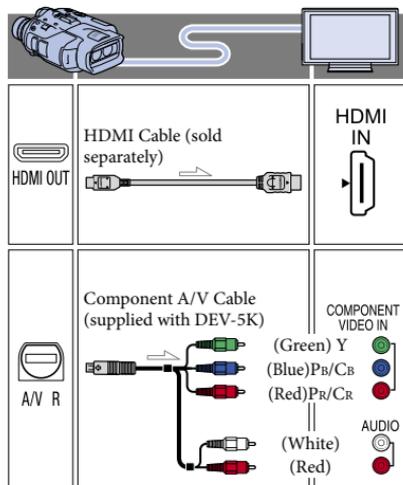
Notes
• When the TV is connected with a component A/V cable, 3D movies are displayed in 2D.

Adjusting the depth of 3D movies when this product is connected to a 3D TV with an HDMI cable (sold separately)

You can adjust the depth of image while playing back 3D movies.
Only operating buttons are displayed in the viewfinder. Adjust the depth while checking the images displayed on the TV screen.

① Select ⌧ → [3D Depth Adjustment] on the 3D movie playback screen.

The movie stops, and a warning about [3D Depth Adjustment] appears.

Select [Next] to display the screen used to adjust the vertical direction.

② Select ➕/➖ to adjust the vertical direction → [Next].

✕	3D Depth Adjustment

Adjust height of the doubled image of the target to match.

RESET   ➕

➖   Next▶
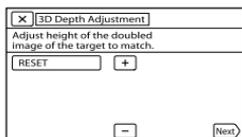
The screen used to adjust horizontal direction appears.

③ Select ➕/➖ to adjust the horizontal direction → OK.

✕	3D Depth Adjustment

Adjust the depth to match your preference.

RESET   +1

➖   ➕

◀Back   OK
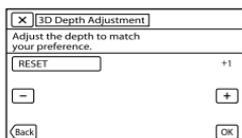
Connecting to a high definition TV

The movies are played back in high definition image quality.

	HDMI Cable (sold separately)	HDMI IN
HDMI OUT		
	Component A/V Cable (supplied with DEV-5K)	COMPONENT VIDEO IN
A/V R	(Green) Y (Blue)Pʙ/Cʙ (Red)Pʀ/Cʀ (White) (Red)	AUDIO
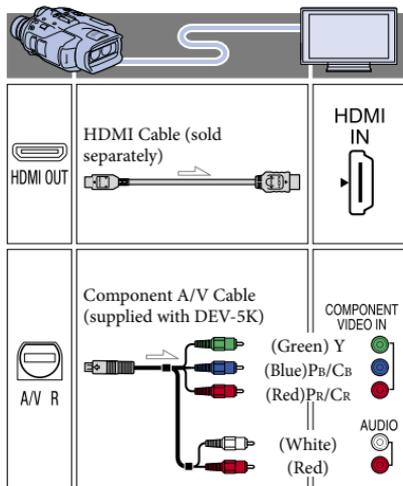
Connecting to a non-high-definition 16:9 (wide) or 4:3 TV

Movies are played back in standard definition image quality.

	Component A/V Cable (supplied with DEV-5K)	COMPONENT VIDEO IN
	(Green) Y (Blue)Pʙ/Cʙ (Red)Pʀ/Cʀ	
	(White) (Red)	AUDIO
A/V R	A/V connecting cable (supplied) (Yellow) (White) (Red)	VIDEO AUDIO
	A/V connecting cable with S VIDEO (sold separately) (White) (Red) (Yellow)	S VIDEO VIDEO AUDIO
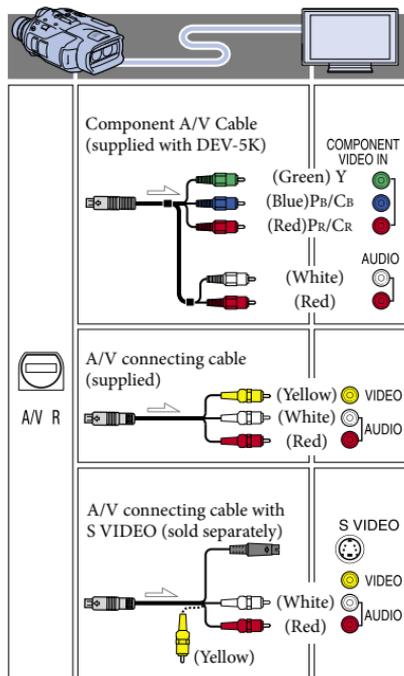
When you connect with component A/V cable

- If you connect only component video plugs, audio signals are not output. Connect the white and red plugs to output audio signals.
- Select the [Component] setting for the component input jack you are using. Select MENU (MENU) → [Setup] → [⇄ (⇄ Connection)] → [Component] → a desired setting → OK to make the setting.

When you connect with HDMI cable

- Use an HDMI cable with the HDMI logo.
- Use an HDMI mini connector on one end (for this product), and a plug suitable for connecting your TV on the other end.
- Copyright-protected images are not output from the HDMI OUT jack of this product.
- Some TVs may not function correctly (e.g., no sound or image) with this connection.
- Do not connect this product HDMI OUT jack to an external device HDMI OUT jack, as malfunction may result.

To set the aspect ratio according to the connected TV (16:9/4:3)

- Set [TV Type] to [16:9] or [4:3] according to your TV (p. 66).

When you connect with A/V connecting cable with S-Video

- When the S VIDEO plug (S VIDEO channel) is connected, audio signals are not output. To output audio signals, connect the white and red plugs to the audio input jack of your TV.
- This connection produces higher resolution images compared with the A/V connecting cable.

When your TV is monaural (When your TV has only one audio input jack)

- Connect the yellow plug of the A/V connecting cable to the video input jack and connect the white (left channel) or red (right channel) plug to the audio input jack of your TV or VCR.

When connecting to your TV via a VCR

- Connect this product to the LINE IN input on the VCR using the A/V connecting cable. Set the input selector on the VCR to LINE (VIDEO 1, VIDEO 2, etc.).

Notes

- When the A/V connecting cable is used to output movies, movies are output with standard definition image quality.

If your TV/VCR has a 21-pin adaptor (EUROCONNECTOR)

Use a 21-pin adaptor (sold separately) to view playback pictures.

 → TV/VCR
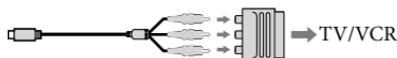
Tips

- If you connect this product to the TV using more than one type of cable to output images, the order of priority of the TV input jacks is as follows:

  HDMI → component → S VIDEO → video
- HDMI (High Definition Multimedia Interface) is an interface to send both video/audio signals. The HDMI OUT jack outputs high quality images and digital audio.

Using "BRAVIA" Sync

You can operate this product with the remote commander of your TV by connecting this product to a "BRAVIA" Sync compatible TV launched in 2008 or later with the HDMI cable.
You can operate the menu of this product by pressing the SYNC MENU button of the remote commander of your TV. You can display this product screens such as Event Index, play selected movies or display selected photos by pressing up/down/left/right/enter buttons of the remote commander of your TV.

Notes

- There may be some operations you cannot do with the remote commander.
- To set this product, select MENU (MENU) → [Setup] → [⇄(⇄ Connection)] → [CTRL FOR HDMI] → [On] (the default setting) → OK → ✕ → ✕.
- Also set your TV accordingly. Refer to the instruction manual of the TV for details.

- The operation of "BRAVIA" Sync differs according to each model of BRAVIA. Refer to the instruction manual of your TV for details.

🌐 Tips
- If you turn off the TV, this product is turned off simultaneously.

Useful functions for recording movies and photos

The available menu items differ between the movie mode (▤) and photo mode (◻).

Recording better images automatically (Intelligent Auto) ▤◻

When you turn this product toward the subject, this product sets the optimum combination of the 3 detection modes: Face detection, Scene detection and Camera-shake detection ([Off] is the default setting). When this product detects the subject, the icons that correspond to the detected condition are displayed.

1 Select i⚙ at the right bottom on the recording screen of movies or photos.

```
 MENU          STBY

  ▶                    i⚙
```

2 Select [On] → OK.

Face detection

😊 (Portrait), 👶 (Baby)
This product detects faces, and adjusts the focus, color, and exposure.

Scene detection

▨ (Backlight), ▲ (Landscape),
🌙 (Night scene), 🎯 (Spotlight), ☀ (Low light), ♣ (Macro)
This product selects the most effective setting automatically, depending on the scene.

Camera-shake detection

🚶 (Walk), 🎫 (Tripod)
This product detects whether camera-shake occurs or not, and makes the optimum compensation.

⊘ Notes

• This product may not detect the expected scene or subject, depending on the recording conditions.

Selecting the recording mode ▤

You can switch the recording mode to select the movie quality ([Standard **HQ**] is the default setting). The recording time of the memory card is changed depending on the recording mode.
You cannot change the recording mode while recording 3D movies.

1 Select MENU (MENU) → [Image Quality/Size] → [▤ REC Mode].

2 Select the desired recording mode.

```
 ✕   ▤REC Mode            HG
     Sets the quality of movies.
 Highest Quality FX   High Quality FH
   Standard HG        Long Time LP
    Recordable/copyable media.
      🗄 🖳 💿 💿 *
```
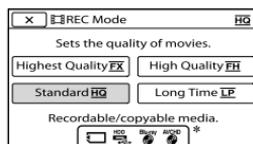
The recording modes available will depend on the selected [🎬 Frame Rate] (p. 63).

* ⊘ appears on a medium icon if a movie recorded with the selected recording mode cannot be saved on that medium.

---

3 Select .

Recording modes and the media

Types of media that images can be saved on will depend on the recording mode selected.

For details on a save operation using the external devices, see page 43.

Types of media	Recording mode			
	3D	PS*	FX	FH/HQ/LP
External media (USB storage devices)	✔	✔	✔	✔
Blu-ray discs	✔	✔	✔	✔
AVCHD recording discs	—	—	—	✔

* [PS] can be set only when [🎬 Frame Rate] is set to [60p] ([50p]).

💡 Tips

• This product can record images with the following recording format. The recording format varies depending on the setting of [60i/50i Sel].

When [60i/50i Sel] is set to [60i (NTSC)]
 – 3D mode: 1920 × 1080/60i
 – PS mode: 1920 × 1080/60p
 – FX or FH mode: 1920 × 1080/60i
 – HQ or LP mode: 1440 × 1080/60i

When [60i/50i Sel] is set to [50i (PAL)]
 – 3D mode: 1920 × 1080/50i

 – PS mode: 1920 × 1080/50p
 – FX or FH mode: 1920 × 1080/50i
 – HQ or LP mode: 1440 × 1080/50i

• You can select the following recording mode.
 – [3D] (HD 28M (3D))
 – [60p Quality **PS**] ([50p Quality **PS**]) (AVC HD 28M (PS))
 – [Highest Quality **FX**] (AVC HD 24M (FX))
 – [High Quality **FH**] (AVC HD 17M (FH))
 – [Standard **HQ**] (AVC HD 9M (HQ)) (the default setting)
 – [Long Time **LP**] (AVC HD 5M (LP))

• "M," such as in "24M," means "Mbps."

Recording information on your location (GPS) (DEV-5/5K) 🎬 📷

This product records information on the location when movies or photos are recorded (the default setting).

GPS triangulating status

Searching for the satellites

Number of dots changes

Triangulating

Unable to triangulate

NO GPS SIGNAL

Triangulating meters

Unable to record location information
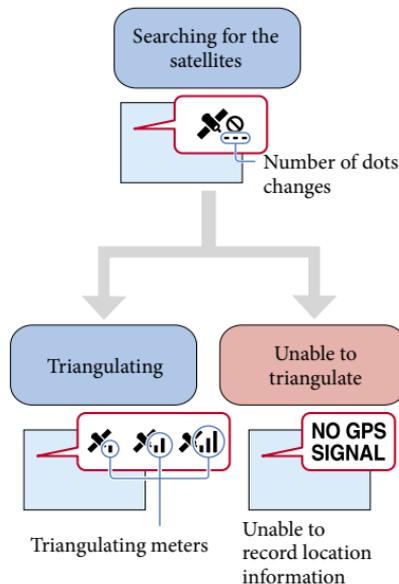
Notes

- It may take a while before this product starts triangulating.
- If this product cannot triangulate, the following operations may resolve the issue.
  - Move to a place where radio signals are easier to receive.

Tips

- In the following situations, the current location of this product shown on the map may be different from the actual location. The margin of error can be as wide as several hundred meters.
  - When this product receives GPS signals that have been reflected off surrounding buildings.
  - When the GPS signal is too weak.
- To display recorded location information, perform MENU (MENU) → [Setup] → [▶ (▶ Playback Settings)] → [Data Code] → [Coordinates].

Establishing priorities for location information

See page 69.

If you do not want to record location information

Perform MENU (MENU) → [Setup] → [(General Settings)] → [GPS Setting] → [Off].

Controlling the image settings manually with the MANUAL dial

You can assign 1 menu item you use often to the MANUAL dial.

The operation below is described as adjusting the 3D depth using the MANUAL dial that [3D Depth Adjustment] is assigned to. The [3D Depth Adjustment] here allows you to adjust the 3-dimensional appearance of the image on the screen during recording.

MANUAL button
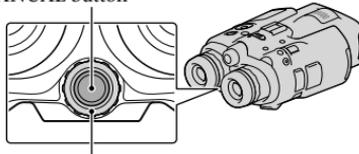
MANUAL dial

1 Press MANUAL to make this product adjust the depth of the 3D image.

Pressing MANUAL repeatedly toggles between enabling and disabling the 3D depth adjustment.

2 Rotate the MANUAL dial to adjust the 3D depth while checking the image on the screen.

Items you can control with the MANUAL dial

Movie recording

- [3D Depth Adjustment]
- [Focus] ... p. 57
- [Exposure] ... p. 57
- [AE Shift] ... p. 58
- [White Balance Shift] ... p. 58

Photo recording

- [Focus] ... p. 57
- [Exposure] ... p. 57
- [IRIS] ... p. 58
- [Shutter Speed] ... p. 58
- [AE Shift] ... p. 58
- [White Balance Shift] ... p. 58

To assign the menu item to the MANUAL dial

① Press and hold MANUAL down for a few seconds.

The [Dial Setting] screen appears.

```
                    STBY
              Dial Setting
              3D Depth Adjustment
              Focus
              Exposure
              IRIS
              Shutter Speed
              AE Shift
              White Balance Shift
              Reset
[MANUAL]: EXEC
```
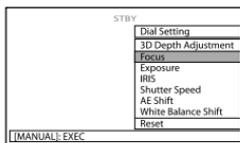
② Rotate the MANUAL dial and select the item to be assigned.

③ Press MANUAL.

Notes

- Manual settings will be retained even if you change the assigned item of the MANUAL dial. However, if you set [Exposure] after setting [AE Shift] manually, [Exposure] will override [AE Shift].
- If you set either one of [Exposure], [IRIS], or [Shutter Speed], the settings of other 2 items are canceled.
- If you select [RESET] in step ②, all the items adjusted manually are reset to the default settings.

Tips

- If you select ⊠ at the right of the screen while setting [3D Depth Adjustment], the manual setting of [3D Depth Adjustment] is canceled.
- In the case of items other than [3D Depth Adjustment], pressing MANUAL switches between automatic and manual settings.
- You can also assign menu items to the MANUAL dial by selecting ▤ (MENU) → [Camera/Mic] → [🎥 (🎥 Camera Settings)] → [Dial Setting].
- Even if you open the IRIS wider (a smaller F-stop) than F3.4 when you set the zoom lever to the W (Wide angle) side, the IRIS is reset to F3.4 as you move the zoom lever to the T (Telephoto) side.
- If you adjust the IRIS, the in-focus range in front of and behind the focused subject is changed. When you open the IRIS wider (a smaller F-stop), the in-focus range becomes narrower, and when you close the IRIS narrower (a larger F-stop), the in-focus range becomes wider. You can set the IRIS to a preferred value depending on the shooting scenes.
- When you record images under a fluorescent lamp, sodium lamp, or mercury lamp, horizontal stripes may appear, flicker may occur, or color may change. In this case, change the shutter speed according to the power supply frequency in your region.
- The camera data (p. 66) that appears on the screen will differ, depending on the recording settings of this product. The settings will be displayed with the following icons.
  - AUTO : Automatic
  - MANUAL : Exposure is set manually.

Making good use of this product

Deleting images

You can free memory card space by deleting movies and photos from memory card.

⊘ Notes
- You cannot restore images once they are deleted. Save important movies and photos in advance.
- Do not remove the battery pack or the AC Adaptor from this product while deleting the images. It may damage the memory card.
- Do not eject the memory card while deleting images.
- You cannot delete protected movies and photos. Undo the protection of the movies and photos to delete them, before you try to delete them (p. 35).

💡 Tips
- You can delete the image using 🗑 on the playback screen.
- To delete all images recorded in the memory card, and recover all the recordable space of the memory card, format the memory card (p. 65).
- Reduced-size images which enable you to view many images at the same time on an index screen are called "thumbnails."

1 Press ▶ (View Images) (p. 24).

2 Select MENU (MENU) → [Edit/Copy] → [Delete] using the ▲/▼/◀/▶/Enter buttons.

3 To select and delete movies, select [Multiple Images] → [**HD** MOVIE]/[🖾 PHOTO]/ [🎬 MOVIE/PHOTO]*.

```
  ☒  Delete

   ▭ MOVIE          🖾 PHOTO

   🎬 MOVIE/PHOTO
```
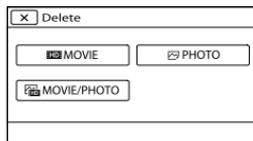
* Only 3D movies can be deleted in the 3D mode.

4 Select the movies or photos to be deleted.

✔ is displayed on the selected images.
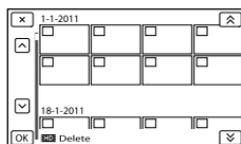
```
 ☒  1-1-2011          ☒
 ☐
 ☐

 ☑  18-1-2011
 OK  ▭ Delete        ☒
```

- Press PHOTO while selecting the desired thumbnail so that you can confirm the image. Select ☒ to return to the previous screen.

5 Select OK → OK → OK.

To delete all movies/photos in an event at one time

① In step 3, select [All In Event].
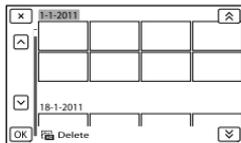
```
 ☒  1-1-2011          ☒
 ☐

 ☑  18-1-2011
 OK  🎬 Delete         ☒
```

② Select ▲/▼ and press Enter to select the desired event, then select OK.

- Press PHOTO while selecting the desired thumbnail so that you can confirm the image. Select ✕ to return to the previous screen.

③ Select OK → OK.

Protecting recorded movies and photos (Protect)

Protect movies and photos to avoid deleting them by mistake.

1 Press ▶ (View Images) (p. 24).

2 Select MENU (MENU) → [Edit/Copy] → [Protect] using the ▲/▼/◄/►/Enter buttons.

3 To select and protect movies, select [Multiple Images] → [HD MOVIE]/[☑ PHOTO]/ [☑ MOVIE/PHOTO]*.

- * Only 3D movies can be protected in the 3D mode.

4 Select the movies and photos to be protected.

✔ is displayed on the selected images.

- Press PHOTO while selecting the desired thumbnail so that you can confirm the image. Select ✕ to return to the previous screen.

5 Select OK → OK → OK.
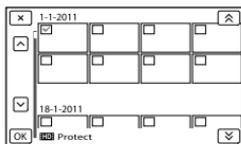
To undo the protection of movies and photos

Select the movie or photo marked with ✔ in step 4.

✔ disappears.

To protect all movies/photos in an event at one time

① In step 3, select [Set All In Event].
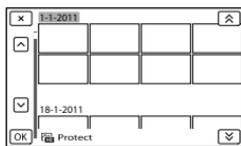
② Select ▲/▼ and press Enter to select the desired event, then select OK.

- Press PHOTO while selecting the desired thumbnail so that you can confirm the image. Select ✕ to return to the previous screen.

③ Select OK → OK.

To undo the protection of an event

In step 3 above, select [Remove All In Event], select the desired movies/photos, then select OK → OK → OK.

Dividing a movie

You can divide a movie to delete unnecessary parts.

---

1 Select 🗺 → [Divide] on the movie playback screen using the ▲/▼/◄/►/Enter buttons.

---

2 Select ▶ to play back movies.

---

3 Select ❚❚ at the point where you want to divide the movie into scenes.

The movie pauses.

---

4 Select ◄❚/❚► to adjust the dividing point with more precision.
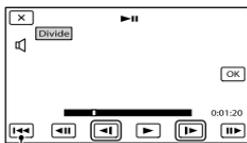
Returns to the beginning of the selected movie

---

5 Select OK → OK .

⚠ **Notes**
- You cannot restore movies once they are divided.
- You cannot divide protected movie. Undo the protection of the movie to divide it, before you try to divide it (p. 35).

- Do not remove the battery pack or the AC Adaptor from this product while dividing the movie. It may damage the memory card.
- Do not eject the memory card while dividing movies.
- A slight difference may occur from the point where you select ❚❚ and the actual dividing point, as this product selects the dividing point based on about 0.5 second increments.
- Only simple editing is available on this product. Use the supplied software "PMB" for more advanced editing.

Selecting the method for creating a disc (computer)

Several methods for creating a disc from movies or photos recorded on this product are described here. Select the method that suits your disc player.

Disc type	Choosing a method	Player
Blu-ray To save images on a Blu-ray disc with high definition image quality	① Importing movies and photos to a computer (p. 39) ↓ ② Creating a Blu-ray disc* with high definition image quality (p. 42)	Blu-ray disc playback devices (a Sony Blu-ray disc player, PlayStation®3, etc.)
DVD To save images on a AVCHD recording disc with high definition image quality	Creating a disc with one touch (Disc Burn) (p. 40) ① Importing movies and photos to a computer (p. 39) ↓ ② Creating a AVCHD recording disc with high definition image quality (p. 41)	AVCHD format playback devices (a Sony Blu-ray disc player, PlayStation®3, etc.)
DVD To copy images on a disc in standard definition image quality to distribute	① Importing movies and photos to a computer (p. 39) ↓ ② Creating a standard definition image quality disc (p. 41)	Ordinary DVD playback devices (a DVD player, a computer that can play DVDs, etc.)

* To create a Blu-ray disc, the BD Add-on Software for "PMB" must be installed (p. 42).

Discs you can use with "PMB"

You can use 12 cm discs of following type with "PMB." For Blu-ray disc, see page 42.

Disc type	Features
DVD-R/DVD+R/DVD+R DL	Unrewritable
DVD-RW/DVD+RW	Rewritable

⚡ Notes

- Always maintain your PlayStation®3 to use the latest version of the PlayStation®3 system software.
- The PlayStation®3 may not be available in some countries/regions.

Importing movies and photos to a computer

Movies and photos recorded on this product can be imported to a computer. Turn on the computer beforehand.

Notes

• Connect this product to the wall outlet (wall socket) using the supplied AC Adaptor for this operation (p. 14).

1 Turn on this product, then connect this product to the computer using the USB cable (supplied).

USB cable (supplied)
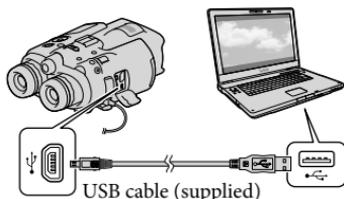
The [USB Select] screen appears on the screen of this product.

2 Select [USB Connect] using ▲/▼/◄/► and press Enter.

• If the [USB Select] screen does not appear, select MENU (MENU) → [Setup] → [⇄ (⇄ Connection)] → [USB Connect].

The window for import appears on the computer screen.

If you want to change the location where imported media files will be saved, click [PMB] → [Tools] → [Settings...] → [Import media files to] → [Browse...], then select the desired location.

3 Click [Import].

• Refer to "PMB Help" for details.

Movies and photos are imported to your computer.

When the operation is completed, the "PMB" screen appears.

Creating a disc with one touch

(Disc Burn)

Movies and photos recorded on this product that have not yet been saved with Disc Burn function can be saved on a disc automatically. Movies and photos are saved on a disc with their recorded image quality.

Notes

- 2D movies (the default setting) will make an AVCHD recording disc.
- You cannot create AVCHD recording discs:
  – from 3D movies
  – from movies recorded with [Highest Quality **FX**] or [60p Quality **PS**] ([50p Quality **PS**]) mode of [🎥 REC Mode].
- Creating a Blu-ray disc is not available with Disc Burn.
- To create a standard definition image quality disc from high definition image quality movies, import movies to a computer first (p. 39), and then create a standard definition image quality disc (p. 41).
- Install "PMB" beforehand, however, do not start "PMB."
- Connect this product to the wall outlet (wall socket) using the supplied AC Adaptor for this operation (p. 14).

1 Turn on your computer, and place an unused disc on the DVD drive.

- See page 38 for the type of discs you can use.
- If any other software than "PMB" starts automatically, shut it down.

2 Turn on this product, then connect this product to the computer using the USB cable (supplied).

USB cable (supplied)
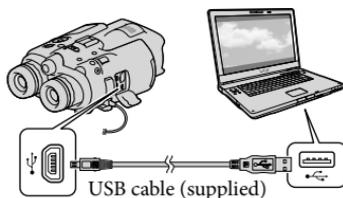
The [USB Select] screen appears on the screen of this product.

3 Select [Disc Burn] using ▲/▼/◄/► and press Enter.

4 Follow the instructions on the computer screen.

Notes

- Movies and photos are not saved on the computer when you perform Disc Burn.
- In the Disc Burn procedure, the words "Handycam" may be displayed on the computer screen. That does not have any effect on this product.

Saving images on a disc

You can select movies that have been imported to a computer and save them on a disc.

1 **Turn on your computer, and place an unused disc on the DVD drive.**

   - See page 37 for the type of discs you can use.
   - If any other software than "PMB" starts automatically, shut it down.

2 **Start "PMB."**

3 **Click [Calendar] or [Index] to select the date or folder, and select the movie you want to save on the disc.**

   - High definition image quality (HD) movies are marked with 🅷🅳.
   - To select plural movies, hold the Ctrl key down and click thumbnails.

4 **Click ⦿ (Create Disc) to select the type of disc you want to use.**
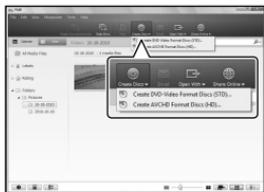
The movie selection window appears.

[Create AVCHD Format Discs (HD)]:
You can save movies with high definition image quality on a DVD disc.
[Create DVD-Video Format Discs (STD)]:
You can save movies with standard definition image quality on a DVD disc. Saving movies will take longer than the actual length of the movies, because the image quality must be converted from high definition to standard definition when saving the movie on the disc.

   - To add movies to the previously selected ones, select the movies in the main window and drag and drop onto the window for selecting movies.

5 **Follow the instructions on the screen to create a disc.**

   - It may take a long time to create a disc.

Playing an AVCHD recording disc on a computer

You can play back AVCHD recording discs using "Player for AVCHD" that is installed together with "PMB."

To start "Player for AVCHD"

Click [Start] → [All Programs] → [PMB] → [PMB Launcher] → [View] → [Player for AVCHD].
See the "Player for AVCHD" help on the operation.

🔅 Notes

- Movies may not be played smoothly depending on the computer environment.

Creating a Blu-ray disc

You can create a Blu-ray disc with a movie previously imported to a computer (p. 39). To create a Blu-ray disc, the BD Add-on Software for "PMB" must be installed. Click [BD Add-on Software] on the installation screen of "PMB," and install this plug-in according to the on-screen instructions.

• Connect your computer to the internet when you install [BD Add-on Software].

Place an unused Blu-ray disc in the disc drive, and click ◉ (Create Disc) → [Create Blu-ray Disc (HD)] in step 4 of "Saving images on a disc" (p. 41). Other procedures are the same as that for creating an AVCHD disc.

Notes

• Your computer must support the creation of Blu-ray discs.
• BD-R (unrewritable) and BD-RE (rewritable) media are available for creating Blu-ray discs. You cannot add contents to either type of disc after creating the disc.
• Use a device compatible with AVCHD format Ver. 2.0 to play back a Blu-ray disc created with movies recorded in [60p Quality $\overline{PS}$] ([50p Quality $\overline{PS}$]) or 3D.

Copying a disc

You can copy a recorded disc to another disc using "Video Disc Copier."
Click [Start] → [All Programs] → [PMB] → [PMB Launcher] → [Disc Creation] → [Video Disc Copier] to start the software. See "Video Disc Copier" help on the operation.

Notes

• You cannot copy high definition image quality movies by converting them to standard definition image quality.
• You cannot copy to a Blu-ray disc.

Selecting a method for saving images with an external device

You can save movies using an external device. Select the method to be used according to the device.

Movies		External devices	Connecting cable	Page
3D/2D		**External media device** Saving images on an external media device with high definition image quality.	USB Adaptor Cable (supplied with DEV-5K)	45
2D		**DVD writer other than DVDirect Express** Saving images on a DVD disc with high definition image quality.	USB cable (supplied)	48
		Hard disk recorder, etc. Saving images on a DVD disc with standard definition image quality.	A/V connecting cable (supplied)	49
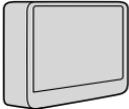
Notes

- The AVCHD recording disc can be played back only on AVCHD format compatible devices.
- Discs with high definition image quality images recorded should not be used in DVD players/recorders. Because DVD players/recorders are not compatible with the AVCHD format, DVD players/recorders may fail to eject the disc.

The types of media on which images are saved

The devices on which the created disc can be played back

Blu-ray Disc

Blu-ray disc playback devices, such as a Sony Blu-ray disc player or a PlayStation®3.

DVD disc with high definition image quality

AVCHD format playback devices, such as a Sony Blu-ray disc player or a PlayStation®3.

DVD disc with standard definition image quality

Ordinary DVD playback devices, such as a DVD player.

ⓘ Notes

• Always maintain your PlayStation®3 to use the latest version of the PlayStation®3 system software.
• The PlayStation®3 may not be available in some countries/regions.

Saving images on an external media device

You can save movies and photos on an external media device (USB storage devices), such as an external hard disk drive. You can also play back images on this product or another playback device.

⚡ Notes
- For this operation, USB Adaptor Cable VMC-UAM1 (supplied with DEV-5K) is required.
- Connect this product to the wall outlet (wall socket) using the supplied AC Adaptor for this operation (p. 14).
- Refer to the instruction manual supplied with the external media device.

🔅 Tips
- You can save 3D movies on an external media device as they are.
- You can import images saved on the external media device to your computer by using the supplied software "PMB."

Functions available after saving images on an external media device
– playback of images through this product (p. 47)
– importing images to "PMB"

Devices that cannot be used as an external media device
- You cannot use the following devices as an external media device.
  – media devices with a capacity exceeding 2 TB
  – ordinary disc drive such as CD or DVD drive
  – media devices connected via a USB hub
  – media devices with built-in USB hub
  – card reader

⚡ Notes
- You may not be able to use external media devices with a code function.
- The FAT file system is available for this product. If the storage medium of the external device was formatted for the NTFS file system, etc., format the external media device using this product before use. The format screen appears when an external media device is connected to this product. Make sure that important data has not previously been saved on the external media device before you format it using this product.
- Operation is not assured with every device satisfying requirements for operating.
- For details on available external media devices, go to the Sony support website in your country/region.

1 Connect the AC Adaptor and the power cord (mains lead) to the DC IN jack of this product and the wall outlet (wall socket) (p. 14).

2 If the external media device has the AC power cable, connect it to the wall outlet (wall socket).

3 Connect the USB Adaptor Cable (supplied) to the external media device.

4 Connect the USB Adaptor
Cable to the ⍦ (USB) jack of this
product.

Make sure not to disconnect the USB
cable while [Preparing image database
file. Please wait.] is displayed on
the screen. If [Repair Img. DB F.] is
displayed on the screen of this product,
select ▣OK▣.

USB Adaptor Cable
(supplied with
DEV-5K)
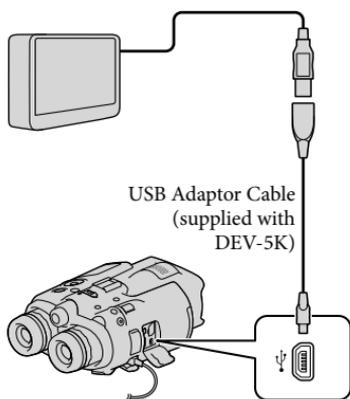
5 Connect the external media
device to this product and select
[Copy.] on the screen of this
product.

Movies and photos that are stored
on the memory card in this product,
and that have not yet been saved on
external media device can be saved
on the connected media device at this
time.
• This operation is available only when there
are newly recorded images.

6 After operation is completed,
select ▣OK▣ on the screen of this
product.

When connecting an external media device

The images saved in the external media
device are displayed on the screen. When
an external media device is connected, the
USB icon will appear on the index screen,
etc.
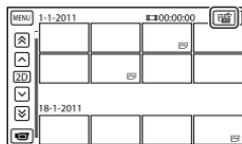
You can make menu settings of the external
media device such as deleting images.
Select 𝗠𝗘𝗡𝗨 (MENU) → [Edit/Copy] on
the index screen.

To disconnect the external media device

① Select ▣ while this product is in
the playback standby mode (index is
displayed) of the external media device.
② Disconnect the USB Adaptor Cable.

Notes
• The number of scenes you can save on an
external media device are as follows. However,
even if the external media device has free space,
you cannot save scenes exceeding the following
number.
– Movies: Max. 3,999 (2D and 3D each)
– Photos: Max. 40,000
The number of scenes may be smaller
depending on this product setting and the type
of images recorded.

Saving desired movies and photos

You can save desired images in this product to the external media device.

1 Connect this product to the external media device and select [Play without copying.].

Index of the external medium is displayed.

2 Select <u>MENU</u> (MENU) → [Edit/Copy] → [Copy].

3 Follow the instructions that appear on the viewfinder screen to select the image selection methods and type of the image.

• You cannot copy images from an external media device to the memory card in this product.

4 When you selected [Multiple Images], select the image to be saved and press Enter.

✓ appears.
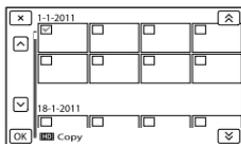
• Press PHOTO while selecting the desired thumbnail to confirm the image. Select ✕ to return to the previous screen.
• If you select [All In Event], select the event to copy with ⌃ / ⌄ . You cannot select multiple events.

5 Select <u>OK</u> → <u>OK</u> → <u>OK</u> on the screen of this product.

Playing back images in the external media device on this product

1 Connect this product to the external media device and select [Play without copying.].

Index of the external media device is displayed.

2 Select the image you want to view and press Enter to play back the image (p. 24).

• You can also view images on a TV connected to this product (p. 26).
• You can play back the high definition image quality movies on your computer using [Player for AVCHD]. Start [Player for AVCHD], and select the drive where the external media device is connected with [Settings].

To perform [Direct Copy] manually

You can perform [Direct Copy] manually while this product is connected to an external media device.

① Select <u>MENU</u> (MENU) → [Edit/Copy] → [Direct Copy] on the Event Index screen of the external media device.
② Select [Copy images that have not been copied.].
③ Select <u>OK</u> → <u>OK</u>.

Notes
- If this product does not recognize the external media device, try the following operations.
  – Reconnect the USB Adaptor Cable to this product.
  – If the external media device has the AC power cord (mains lead), connect it to the wall outlet (wall socket).

Creating a high definition image quality disc with a DVD writer, etc., other than DVDirect Express

Use the USB cable to connect this product to a disc creation device, which is compatible with high definition image quality movies, such as a Sony DVD writer. Refer also to the instruction manuals supplied with the device to be connected.

Notes
- You cannot save 3D movies.
- Sony DVD writer may not be available in some countries/regions.

1 Connect the AC Adaptor and the power cord (mains lead) to the DC IN jack of this product and the wall outlet (wall socket) (p. 14).

2 Turn on this product, and connect a DVD writer, etc. to this product with the USB cable (supplied).

USB cable (supplied)
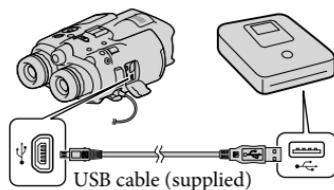
The [USB Select] screen appears on the screen of this product.
- If the [USB Select] screen does not appear, select MENU (MENU) → [Setup] → [⇄ (⇄ Connection)] → [USB Connect].

3 Select [USB Connect] on the screen of this product.

4 Record movies on the connected device.

• For details, refer to the instruction manuals supplied with the device to be connected.

5 After the operation is completed, select ✕ → OK on the screen of this product.

6 Disconnect the USB cable.

Creating a standard definition image quality disc with a recorder, etc.

You can copy images played back on this product on a disc or video cassette, by connecting this product to a disc recorder, a Sony DVD writer, etc., other than DVDirect Express, with the A/V connecting cable. Connect the device in either way of ① or ②. Refer also to the instruction manuals supplied with the devices to be connected.

ⓝ Notes

• 3D movies are converted to 2D with standard definition image quality.
• Connect this product to the wall outlet (wall socket) using the supplied AC Adaptor for this operation (p. 14).
• Sony DVD writer may not be available in some countries/regions.
• High definition image quality movies will be copied with standard definition image quality.

A/V Remote Connector

Input

S VIDEO

VIDEO
(Yellow)

(White)

AUDIO

(Red)

(Yellow)

Signal flow
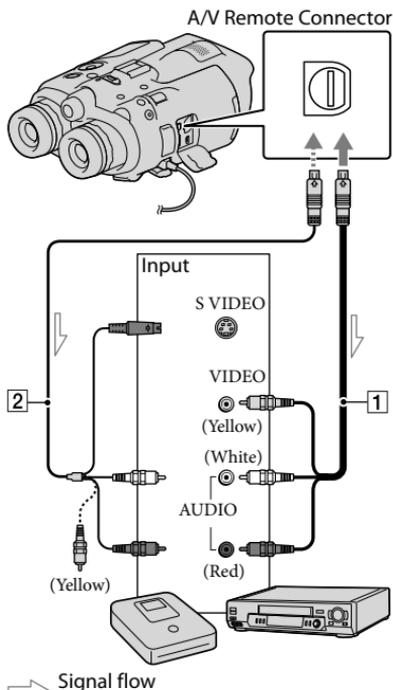
1 A/V connecting cable (supplied)

2 A/V connecting cable with S VIDEO (sold separately)
By using this cable, higher quality images can be produced than with an A/V connecting cable. Connect the white and red plug (left/right audio) and the S VIDEO plug (S VIDEO channel) of the A/V connecting cable with an S VIDEO cable. If you connect the S VIDEO plug only, you will hear no sound. The yellow plug (video) connection is not necessary.

1 Insert the recording media in the recording device.

• If your recording device has an input selector, set it to the input mode.

2 Connect this product to the recording device (a disc recorder, etc.) with the A/V connecting cable 1 (supplied) or an A/V connecting cable with S VIDEO 2 (sold separately).

• Connect this product to the input jacks of the recording device.

3 Start playback on this product, and record it on the recording device.

• Refer to the instruction manuals supplied with your recording device for details.

4 When dubbing is finished, stop the recording device, and then this product.

④ Notes

• Since copying is performed via analog data transfer, the image quality may deteriorate.
• You cannot copy images to recorders connected with an HDMI cable.
• To copy date/time information camera data, and coordinates (DEV-5/5K), select MENU (MENU) → [Setup] → [▶ (▶ Playback Settings)] → [Data Code] → a desired setting → OK.
• When the screen size of display devices (TV, etc.) is 4:3, select MENU (MENU) → [Setup] → [⇄ (⇄ Connection)] → [TV Type] → [4:3] → OK.

- When you connect a monaural device, connect the yellow plug of the A/V connecting cable to the video input jack, and the white (left channel) or the red (right channel) plug to the audio input jack on the device.

Using menus

You can enjoy using this product more by making good use of menu operations.
This product has various menu items under each of 6 menu categories.

🎬 **Shooting Mode (Items for selecting a shooting mode)** → **p. 56**

🎥 **Camera/Mic (Items for customized shooting)** → **p. 56**

🔲 **Image Quality/Size (Items for setting up image quality or size)** → **p. 63**

▶ **Playback Function (Items for playback)** → **p. 24**

✂ **Edit/Copy (Items for editing)** → **p. 64**

🎛 **Setup (Other setup items)** → **p. 65**

Operating menus

Select **MENU** (MENU) using the ▲/▼/◀/▶/Enter buttons and set the menu items.
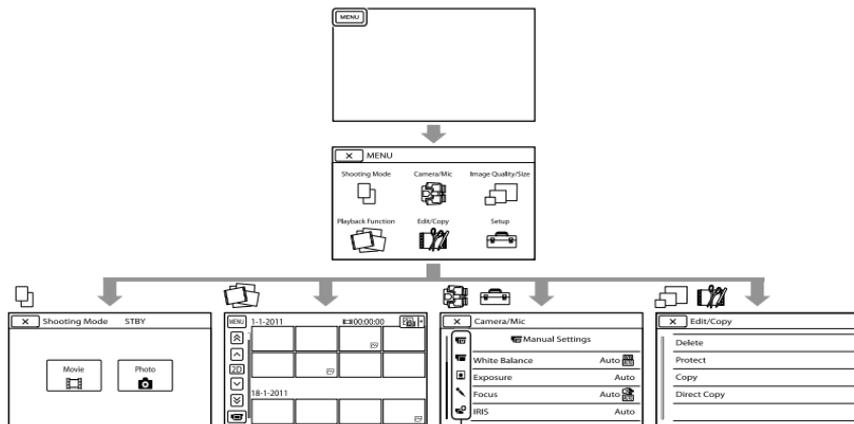
Sub-category icons

The [Camera/Mic] and [Setup] menus have sub-categories. Select the sub-category icon, and the screen changes to other sub-category menus.
Grayed out menu items or settings are not available.

⚠ Notes

• You may not be able to set some menu items, depending on the recording or playback conditions.
• Select ✕ to finish setting the menu or to return to the previous menu screen.

Menu lists

The available menu items differ between the movie mode (🎥) and photo mode (📷).

⬛ (⬛ Shooting Assist)

⬛ Image Quality/Size

⬛ Playback Function

⬛ Edit/Copy

⬛ Setup

⬛ (⬛ Media Settings)

⬛ (⬛ Playback Settings)

⬛ (⬛ Connection)

HDMI 3D Setting	Select the output format of the right and left images when you connect this product to a 3D TV with the HDMI cable (sold separately).	67
HDMI Resolution	Select the output image resolution when connecting this product to a TV with the HDMI cable (sold separately).	67
CTRL FOR HDMI	Sets whether or not the TV's Remote Commander is to be used when this product is connected to a "BRAVIA" Sync compatible TV with the HDMI cable (sold separately).	68
USB Connect	Connects this product to an external device via USB.	68
Disc Burn	Selecting this item allows you to save images onto discs via a computer.	40

🔧 (🔧 General Settings)

VF Brightness	Adjusts the brightness of the viewfinder.	68
Viewfinder Adjust	Adjusts the relative vertical position of the right and left viewfinder.	68
GPS Information*	Displays location information.	68
GPS Setting*	Sets the GPS.	69
REC Lamp	Sets the recording lamp to light up or not.	69
Beep	Sets whether this product sounds operation beeps or not.	69
A. Shut Off	Changes the [A. Shut Off] setting.	69
Language Setting	Sets the display language.	70
60i/50i Sel	Switch 1080/60i (NTSC-system) and 1080/50i (PAL-system).	70
Battery Info	Displays the battery information.	70

🕐 (🕐 Clock Settings)

Date & Time Setting	Sets the [Date & Time Format], [Summer Time], or [Date & Time].	70
Area Setting	Adjusts for a time difference without stopping the clock.	70
Auto Clock ADJ *	Compensates for time automatically by acquiring location information from the GPS system.	71
Auto Area ADJ*	Compensates for time differences automatically by acquiring location information from the GPS system.	71

* DEV-5/5K

Shooting Mode
(Items for selecting a shooting mode)

See "Using menus" (p. 52) on the operation.

Movie

You can record movies.

Photo

You can shoot photos.

Camera/Mic
(Items for customized shooting)

See "Using menus" (p. 52) on the operation.
The default settings are marked with ▶.

White Balance

You can adjust the color balance to the recording environment.

▶ **AUTO** (Auto)
  The white balance is adjusted automatically.

  ☀ (Outdoor)
  The white balance is appropriately adjusted for the following recording conditions:
  − Outdoors
  − Night views, neon signs and fireworks
  − Sunrise or sunset
  − Under daylight fluorescent lamps

  ☼ (Indoor)
  The white balance is appropriately adjusted for following recording conditions:
  − Indoors
  − At stages where the lighting conditions change quickly
  − Under video lamps, sodium lamps, or incandescent-like color lamps

  ☒ (One Push)
  The white balance will be adjusted according to the ambient light.
  ① Select [☒].
  ② Frame a white object such as a piece of paper, to fill the screen under the same lighting conditions as you will shoot the subject.
  ③ Select [☒SET].

⚡ Notes
• Set [White Balance] to [Auto] or adjust the color in [One Push] under white or cool white fluorescent lamps.
• When you select [One Push], keep framing white objects.
• If you set [White Balance], [Scene Selection] is set to [Auto].

💡 Tips
• If you have changed the battery pack while [Auto] was selected, or taken this product outdoors after inside use (or vice versa), aim this product at a nearby white object for about 10 seconds for better color balance adjustment.
• When the white balance has been set with [One Push], if the lighting conditions changed by bringing this product outdoors from inside the house, or vice versa, you need to redo the [One Push] procedure to readjust the white balance.

Exposure   🇲 🎞 📷

You can fix the brightness of a picture manually. Adjust the brightness when the subject is too bright or too dark.

▶ Auto
Adjusts the exposure automatically.

Manual
Adjusts the exposure manually.

When you set [Exposure] to [Manual], select ⬛ / ⬛ and press Enter to adjust the brightness.

💡 Tips
• You can also adjust manually by using the MANUAL dial (p. 32).

Focus   🇲 🎞 📷

You can adjust the focus manually. You can select this function also when you want to focus on a certain subject intentionally.

▶ Auto
Adjusts the focus automatically.

Manual
Adjusts the focus manually.

When you set [Focus] to [Manual], select ▣← (nearby subject)/→▣ (distant subject) and press Enter to adjust the focus.

⚡ Notes
• When you set [Focus] to [Manual], 🔁 appears.

💡 Tips
• 🔺 appears when the focus cannot be adjusted any closer, and 🔺 appears when the focus cannot be adjusted farther away.
• It is easier to focus on the subject by moving the power zoom lever towards T (telephoto) to adjust the focus, then towards W (wide angle) to adjust the zoom for recording. When you want to record a subject at close range, move the power zoom lever to W (wide angle), then adjust the focus.
• The focal distance information (distance at which the subject is focused on; used as a guide if it is dark and focus adjustment is difficult) appears for a few seconds in the following cases.
  – When the focus mode is switched from automatic to manual
  – When you set focus manually
• You can also adjust manually by using the MANUAL dial (p. 32).

IRIS 🔲 📷

You can shoot images with the IRIS priority mode. If you adjust the IRIS, you can sharpen the subject with its background blurred or sharpen the whole image.

▶ Auto
Adjusts IRIS automatically.

Manual
Adjusts IRIS manually.

🔅 Tips
• You can also adjust manually by using the MANUAL dial (p. 32).

Shutter Speed 🔲 📷

You can shoot images with the Shutter Speed priority mode. When you shoot a moving subject at a higher shutter speed, it appears as if frozen on the image. At a lower shutter speed, the subject appears as if it is flowing.

▶ Auto
Adjusts the shutter speed automatically.

Manual
Adjusts the shutter speed manually.

🔅 Tips
• You can also adjust manually by using the MANUAL dial (p. 32).

AE Shift 🔲 🎬 📷

You can adjust the exposure based on the results of the automatic exposure measurement.

▶ Off
Adjusts the exposure automatically.

On (Adjusted number and EV)
Adjusts the exposure manually.
Select ➕ to record a brighter image, or select ➖ to record a darker image and press Enter to adjust the exposure.

🔅 Tips
• You can adjust the automatic exposure level to brighter or darker when [Exposure] is set to [Auto].
• You can also adjust manually by using the MANUAL dial (p. 32).

White Balance Shift 🔲 🎬 📷

You can adjust the white balance manually.

▶ Off
Adjusts the white balance automatically.

On (🔲 and adjusted number)
Adjusts the white balance manually.

🔅 Tips
• When the white balance is set to a lower value, images appear bluish, and when it is set to higher value, images appear reddish.
• You can also adjust manually by using the MANUAL dial (p. 32).

Low Lux 🔲 📷

You can record bright color images, even in dim light.

▶ Off
The Low Lux function is not used.

On (🚶)
The Low Lux function is used.

Auto 3D Lens Adjust　🎬📹

Automatically corrects the vertical position of the right and left images to record 3D movies and display 3D movies in the viewfinder that can be viewed comfortably, without blurring.
Aim this product at a subject that produces a scale higher than the ◄ mark on the screen, and then select OK (p. 17).

🚫 Notes
• Use [Auto 3D Lens Adjust] in the following cases.
  – When you feel that the 3D movies do not look the way you want them to
  – When you have not adjusted the 3D lenses for a while
  – When a strong mechanical shock has been applied to this product
  – When using this product in a very hot or cold place

💡 Tip
• If [Could not adjust.] appears while zooming out, select [Run Again].

Scene Selection　📹📷

You can record images effectively in various situations.

▶ **AUTO** (Auto)
　Adjusts image quality automatically.

☾ (Night Scene)*
Maintains the darkening atmosphere of the distant surroundings in night scenes shot using a tripod (sold separately).

⚏ (Sunrise&Sunset)*
Reproduces the atmosphere of scenes such as sunsets or sunrises.

❋ (Fireworks)*
Takes spectacular shots of fireworks.

🏔 (Landscape)*
Shoots distant subjects clearly. This setting also prevents this product from focusing on glass or metal mesh in windows between this product and the subject.

👤 (Portrait)
Brings out the subject such as people or flowers while creating a soft background.

💡(Spotlight)**
Prevents people's faces from appearing excessively white when subjects are lit by strong light.

🏖 (Beach)**
Takes the vivid blue of the ocean or a lake.

❄ (Snow)**
Takes bright pictures of a white landscape.

* Adjusted to focus on subjects farther away only.
** Adjusted not to focus on subjects a short distance away.

🚫 Notes
• If you set [Scene Selection], [White Balance] setting is canceled.

Self-Timer

Press PHOTO to start the count down. A photo is recorded after about 10 seconds.

▶ Off

Cancels the self-timer.

On (⟳)

Starts the self-timer recording. To cancel the recording, select [Reset].

Notes

• If you change the [2D/3D Mode Select] setting, the [Self-Timer] setting returns to default.

Tele Macro

This is useful to shoot small subjects, such as flowers or insects. You can blur out backgrounds and the subject stands out clearer.

▶ Off

Cancels Tele Macro. (Tele Macro is also canceled when you move the zoom lever to the W side.)

On (τ꙲)

The zoom (p. 20) moves to the top of the T (telephoto) side automatically and allows recording subjects at close range down to about 25 cm (9 7/8 in.).

Notes

• If you change the [2D/3D Mode Select] setting, the [Tele Macro] setting returns to default.
• When recording a distant subject, focusing may be difficult and can take some time.
• Adjust the focus manually ([Focus], p. 57) when it is hard to focus automatically.

SteadyShot

You can compensate for camera shake. Set [SteadyShot] to [Off] (꙲) when using a tripod (sold separately), then the image becomes natural.

▶ Active

Provides a more powerful SteadyShot effect.

Standard

Provides a SteadyShot effect, performing wide-angle recording under relatively stable recording conditions.

Off (꙲)

The SteadyShot function is not used.

Notes

• If you change the setting of [SteadyShot], the imaging field will also change accordingly.

SteadyShot

You can compensate for camera shake. Set [SteadyShot] to [Off] (꙲) when using a tripod (sold separately), then the image becomes natural.

▶ On

The SteadyShot function is used.

Off (꙲)

The SteadyShot function is not used.

Digital Zoom (DEV-5/5K)

You can change the maximum zoom level. Note that the image quality decreases when you use the digital zoom.

▶ On

The digital zoom is used.

Off

The digital zoom is not used.

- You can change the setting only in the 2D mode.
- [Digital Zoom] is fixed to [On] while recording photos.

Auto Back Light

This product adjusts the exposure for backlit subjects automatically.

▶ On

Adjusts the exposure for backlit subjects automatically.

Off

Does not adjust the exposure for backlit subjects.

Dial Setting

You can select an item you want to set to the MANUAL dial. For details, see page 32.

Face Detection

You can set this product to detect a face automatically.
It adjusts the focus/color/exposure automatically for the face of the subject.

Auto

Detects faces without distinction between adults and children.

Child Priority(👶)

Gives faces of children priority.

Adult Priority(👥)

Gives faces of adults priority.

▶ Off (👤OFF)

Does not detect faces.

Notes
- The frame does not appear on faces, even when this product detects the faces.

- Faces may not be detected depending on recording conditions, subject conditions, and the setting of this product.
- [Face Detection] may not function properly depending on recording conditions. Set [Face Detection] to [Off] in this case.

Tips
- For better face detection performance, shoot the subject(s) under the following conditions:
  – Shoot in a sufficiently bright place
  – The subject(s) does not wear glasses, a hat or mask
  – The subject(s) faces directly towards this product

Wind Noise Reduct.

You can record a movie with less wind noise by cutting the low-frequency sound input from the built-in microphone.

▶ Off

Disables wind noise reduction.

On (🌬)

Enables wind noise reduction.

Micref Level (Microphone reference level)

You can select the microphone level for recording sound.

▶ Normal

Records ambient sounds, converting them into the appropriate level.

Low (🎙↓)

Records ambient sound faithfully. Select [Low] when you want to record an exciting and powerful sound in a concert hall, etc. (This setting is not suitable for recording conversations.)

Audio Output Timing ✎ 📷

You can set the audio output timing to be used when recording movies.

▶ Live
Remove echo caused from the difference between the actual sound heard during recording and that heard through headphones.

Lip Sync
Resolves sync issues between picture and sound.

Guide Frame 📷

You can display the frame and check that the subject is horizontal or vertical.
The frame is not recorded.

▶ Off
Does not display the guide frame.

On
Displays the guide frame.
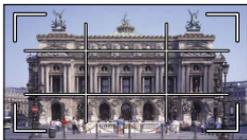
⊘ Notes
• The guide frame cannot be displayed while recording movies.

💡 Tips
• Positioning the subject at the cross point of the guide frame makes a balanced composition.
• The outer frame of [Guide Frame] shows the display area of a TV which is not compatible with full pixel display.

Display Setting 📷

You can set the duration of displaying the icons or indicators in the viewfinder.

▶ Auto
Displays for about 3 seconds.

On
Always displays.

💡 Tips
• The icons or indicators are displayed in the following cases.
– When you turn on this product.
– When you operate the ▲/▼/◀/▶/Enter buttons.
– When you switch this product to the movie recording, photo recording, or playback mode.

Image Quality/Size

(Items for setting up image quality or size)

See "Using menus" (p. 52) on the operation. The default settings are marked with ▶.

REC Mode

See page 30.

Frame Rate

Using [60i] ([50i]) is recommended for standard recording. Set [Frame Rate] first, before setting [REC Mode] (p. 30).

▶ 60i (50i)

For ordinary recording, this frame rate is recommended.

60p (50p)

You can record movies with a volume of data twice that of 60i (50i) with this setting, and this will allow you to enjoy clear images. When you play a movie recorded with this setting on a TV, the TV has to be compatible with 60p (50p) movie playback. If the TV is not compatible with 60p (50p) movie playback, the movie will be output as a 60i (50i) movie.

Notes

• The media that the recorded images can be saved on will depend on the recording mode that has been set during recording. For details, see page 31.

Tips

• Frame rate means the number of images that are updated in a certain period of time.

2D/3D Mode Select

You can switch the operating mode of this product between 2D and 3D.

▶ 2D

Records/plays the 2D movie.

3D

Records/plays the 3D movie.

Notes

• When you record 3D movies, the binocular magnification can be set to up to about 5 times. If you want to watch or record a subject using a larger image, set [2D/3D Mode Select] to [2D].

x.v.Color

You can capture wider range of colors. Various colors such as the brilliant color of flowers and turquoise blue of the sea can be more faithfully reproduced. Refer to the instruction manuals of the TV.

▶ Off

Records in ordinary color range.

On (COLOR)

Records in x.v.Color.

Notes

• Set [x.v.Color] to [On] when the recorded movie will be played back on an x.v.Color-compliant TV.
• If the movie recorded with this function [On] is played back on a non-x.v.Color-compliant TV, the color may not be reproduced correctly.
• [x.v.Color] cannot be set to [On] while recording a movie.

📷 Image Size 📷

You can select a size for the photos you are going to shot.

4:3 7.1M (7.1M)
Records photos clearly (3,072 × 2,304).

▶ **16:9 5.3M (5.3M)**
Records photos clearly in the 16:9 (wide) ratio (3,072 × 1,728).

4:3 1.9M (1.9M)
Allows you to record more photos in relatively clear quality (1,600 × 1,200).

4:3 VGA(0.3M) (VGA)
Allows the maximum number of photos to be recorded (640 × 480).

ⓘ Notes
- The selected image size is effective when the 📷 (Photo) lamp is lit.
- See page 82 for the number of recordable photos.

📽 Edit/Copy
(Items for editing)

Delete

Protect

Copy

Direct Copy

🧰 Setup

(Other setup items)

See "Using menus" (p. 52) on the operation. The default settings are marked with ▶.

Media Info 📹🎬

You can check the remaining recordable time for each recording mode of the memory card for movies and the approximate free and used media space of the memory card.

To turn off the display
Select ✕.

⏱ Notes
• Since there is a management file area, the used space is not displayed as 0 % even if you perform [Format] (p. 65).

Format 📹🎬📷

Formatting deletes all the movies and photos to recover recordable free space.
Select OK → OK.

⏱ Notes
• Connect this product to the wall outlet (wall socket) using the supplied AC Adaptor for this operation (p. 14).
• To avoid the loss of important images, you should save them before formatting the memory card.
• Protected movies and photos will also be deleted.
• While [Executing...] is displayed, do not operate the buttons on this product, disconnect the AC Adaptor, or eject the memory card from this product. (The access lamp is lit or flashing while formatting memory card.)

Repair Img. DB F. 📹🎬📷

See page 76, 79.

File Number 📹📷

You can select the way to assign file number of photos.

▶ Series
Assigns file numbers of photos in sequence. The file number becomes larger each time you record a photo.
Even if the memory card is replaced with another one, the file number is assigned in sequence.

Reset
Assigns file numbers in sequence, following the largest file number existing on the recording medium.
When the memory card is replaced with another one, the file number is assigned for each memory card.

Data Code ▶🎬📷

During playback, this product displays the information (Date/Time, Camera Data, Coordinates*) recorded automatically at the time of recording.

▶ Off
Data code is not displayed.

Date/Time
Displays the date and time.

Camera Data
Displays camera setting data.

Coordinates*
Displays coordinates.

* DEV-5/5K

Date/Time

	☒	►	
			1-1-2011 ── 1
■	◄◄	⊡	Ⅱ	⊡	►►	11:23:4 ── 2
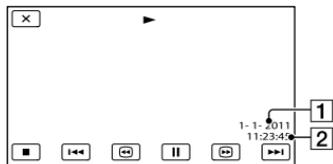
1 Date
2 Time

Camera Data

Movie

	☒	►	
			── 3
		AWB ── 4
	●AUTO	100 ──
	9dB	F1.8 ── 5
■	◄◄	⊡	Ⅱ	⊡	►►	
		8	7	6

Photo

	☒		── 9
		── 10
	𝟜	0EV ── 4
		AWB ──
		100 ── 5
⊠101-0014		F1.8 ── 6
◄◄	⊡	►►	
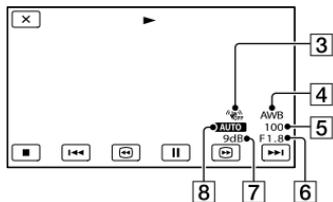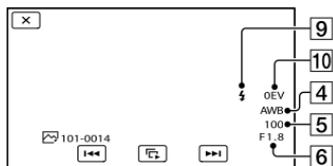
3 SteadyShot off
4 White Balance
5 Shutter Speed
6 IRIS (Aperture value)
7 Gain
8 Brightness
9 Flash
10 Exposure compensation value

Coordinates (DEV-5/5K)

	☒	►	
		35°37′19″ N ── 11
■	◄◄	⊡	Ⅱ	⊡	►►	139°44′43″ W ── 12
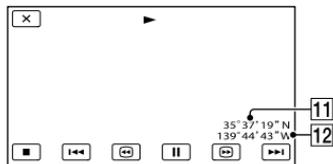
11 Latitude
12 Longitude

☿ Tips

- The data code is displayed on the TV screen if you connect this product to a TV.
- Depending on the memory card condition, bars [--:--:--] appear.

Volume　　　　　　　　　▶️🎞️

You can adjust the volume of playback sound by selecting 🔉/🔊 and pressing Enter.

TV Type　　　　　　　　⇄🎞️📷

You need to convert the signal depending on the TV connected when playing back movies and photos. The recorded movies and photos are played back as following illustrations.

▶ 16:9

Select this to view your movies on a 16:9 (wide) TV. The recorded movies and photos are played back as shown below.

Movies and photos recorded in 16:9 (wide) mode　　Movies and photos recorded in 4:3 mode

4:3

Select this to view your movies and photos on a 4:3 standard TV. The recorded movies and photos are played back as shown below.

Movies and photos recorded in 16:9 (wide) mode   Movies and photos recorded in 4:3 mode

Notes
• Horizontal to vertical ratio of movies is 16:9.

Component   ⇄🎬📷

Select [Component] when connecting this product to a TV with the component input jack.

480i (576i)
Select this when connecting this product to a TV with the component input jack.

▶ 1080i
Select this when connecting this product to a TV that has the component input jack and is capable of displaying the 1080i signal.

1080p
Select this when connecting this product to a TV that has the component input jack and is capable of displaying the 1080p signal.

HDMI 3D Setting   ⇄🎬📷

Select the output format of the right and left images when connecting this product to a 3D TV with the HDMI cable.

▶ Auto
Normal setting (outputs the images according to the TV, automatically).

Frame Packing
Outputs the right and left images in high definition image quality as they were recorded.

Side-by-Side
Halves the resolution of the right and left images in high definition image quality, and outputs the right and left images aligned side by side.

HDMI Resolution   ⇄🎬📷

Select the output image resolution when connecting this product to a TV with the HDMI cable.

▶ Auto
Normal setting (outputs the signal according to the TV automatically).

1080p
Outputs movies with a 1080p signal.

1080i
Outputs movies with a 1080i signal.

720p
Outputs movies with a 720p signal

480p (576p)
Outputs the 480p (576p) signal.

480i (576i)
Outputs the 480i (576i) signal.

Notes
• When [🎬 Frame Rate] is set to [60p] ([50p]) and [HDMI Resolution] is set to [720p] or [480p] ([576p]), HDMI signals cannot be output during recording.

CTRL FOR HDMI (Control for HDMI) ⇄ 🎞 📷

When connecting this product to a "BRAVIA" Sync compatible TV with a HDMI cable (sold separately), you can play back movies on this product by aiming the TV's Remote Commander at the TV (p. 28).

▶ On

Operates this product using the TV's Remote Commander.

Off

Does not operate this product using the TV's Remote Commander.

USB Connect ⇄ 🎞 📷

Select this item when [USB Select] does not appear on the screen by connecting this product to a computer with the USB cable (supplied).
See page 48.

Disc Burn ⇄ 🎞 📷

See page 40.

VF Brightness 🔧 🎞 📷

You can adjust the brightness of the viewfinder in five steps.

Viewfinder Adjust 🔧 🎞

Adjust the relative vertical position of the right and left viewfinder to allow you to view 3D images comfortably.
Move the horizontal line to overlap the vertical lines by selecting ➕ / ➖ , and select 🆗 when these lines overlap.
The viewfinder adjustment dialog may appear automatically depending on the status of this product.

⚠ Notes
• Use [Viewfinder Adjust] in the following cases.
  – When you feel uncomfortable viewing images in 3D
  – When the user of this product changes
  – When strong physical shock has been applied to this product
  – When you use this product under extremely hot or cold conditions
• When the vertical and horizontal lines will not overlap or the horizontal line is extremely tilted, stop using this product and contact your Sony dealer or local authorized Sony service facility.

GPS Information (DEV-5/5K) 🔧 🎞 📷

This product can display location information.

Satellite icons

✕ GPS Information	
	Latitude 17° 34' 58"N
	Longit. 17° 34' 58" E
	Position date and time
	1-1-2011 11:59
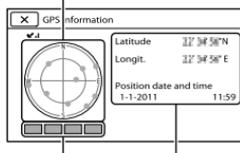
Triangulating gauge Information for the location

How to check the triangulating information

Color of the satellites/ triangulating gauge	Status
● / ■ (black)	No signal, but orbit information for the satellite is available.
● / ■ (gray)	33 % of the satellite orbit information has been obtained.
● / ■ (brown)	66 % of the satellite orbit information has been obtained.
● / ■ (ocher)	99 % of the satellite orbit information has been obtained.
● / ■ (green)	Triangulating is completed and the satellite is currently being used.

If data on your current information cannot be triangulated

This product starts the triangulating priority mode. As this product turns other functions off to search for satellites, obtaining GPS information can take priority.

To close the triangulating information screen

Select [×] and press Enter.

GPS Setting (DEV-5/5K) 🔧 🎬 📷

You can select whether this product receives or does not receive GPS signals (p. 31).

▶ On
Receives GPS signals.

Off
Does not receive GPS signals.

🔅 Notes
• The location information will not be recorded until triangulating is finished successfully after you switch the [GPS Setting] to [On].

REC Lamp (Recording lamp) 🔧 🎬 📷

You can make the recording lamp on the back of this product not to turn on.

▶ On
The camera recording lamp lights up.

Off
The camera recording lamp does not light up.

Beep 🔧 🎬 📷

On
A melody sounds when you start/stop recording, or operate buttons.

▶ Off
Cancels the melody.

A. Shut Off (Auto shut off) 🔧 🎬 📷

You can set this product to turn off automatically when you do not operate this product for more than about 5 minutes.

On
This product turns off automatically.

▶ Off
This product does not turn off automatically.

🔅 Notes
• When you connect this product to a wall outlet (wall socket), this product does not turn off automatically.

Language Setting 🔧 🎬 📷

You can select the language to be used on the screen.

Tips

• This product offers [ENG[SIMP]] (simplified English) for when you cannot find your native tongue among the options.

60i/50i Sel 🔧 🎬 📷

Select the settings depending on the TV color systems of the countries/regions where you use this product.
Select 60i when TV color system is NTSC, and select 50i when TV color system is PAL.

Notes

• You cannot record/play back in the setting of 50i (60i) for the memory card which is formatted or recorded in the setting of 60i (50i). Use another memory card or perform [Format] if the message [A movie with a different video signal format from this device has been recorded. Movie recording disabled.] is displayed after switched the setting of [60i/50i Sel].

Battery Info 🔧 🎬 📷

You can check the estimated remaining capacity of the battery (expected recording and playing time).
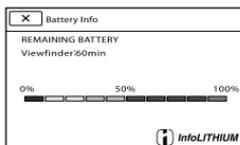
To close the battery information screen
Select ✕ and press Enter.

Date & Time Setting 🕐 🎬 📷

■ Date & Time Format

You can select one from 4 types of date and time format.

■ Summer Time

You can change this setting without stopping the clock. Set to [On] to move the time forward 1 hour.

▶ Off
Does not set the summer time.

On
Sets the summer time.

■ Date & Time

You can set the date and time. Select ◀/▶ to select the item, and select ▲/▼ to set the value.

Area Setting 🕐 🎬 📷

You can adjust a time difference without stopping the clock. Select your local area when using this product in other time zones. Refer to the world time difference information on page 85.

DEV-3

▶ Home
Select this item when you are going to use this product in the area where you are living.

Destination (✈)
Select this item when you want to use this product with the area setting set to another place.

Tips

• If you visit a certain place often and want to use this product with the area setting set to that place, it is useful if you set the place to [Destination].

• Select ☀️OFF/☀️ON at the bottom left on the screen and press Enter to set summer time.

DEV-5/5K

You can set the area.

Tips

• If [Auto Area ADJ] is set to [On], the area setting (date and time) will be adjusted automatically by acquiring location information from the GPS system.

• Select ☀️OFF/☀️ON at the bottom left on the screen and press Enter to set summer time.

Auto Clock ADJ (Auto clock adjustment) (DEV-5/5K)   ⏱🎞📷

This product can maintain accurate time automatically by acquiring time information from the GPS system.

▶ On
   Maintains accurate time automatically.

   Off
   Does not maintain accurate time using the GPS system.

Notes

• You must set the date and time on this product before using this product (p. 15).

• There may be discrepancies of a few seconds even if [Auto Clock ADJ] is activated.

• This function automatically adjusts the clock when this product receives GPS signals and finishes triangulating successfully while the power is on. Once the clock is adjusted, it will not be adjusted until the next time you turn this product on again.

• The clock may not be adjusted to the correct time automatically using the GPS system, depending on the country/region selected for this product. In this case, set [Auto Clock ADJ] to [Off].

Auto Area ADJ (Auto area adjustment) (DEV-5/5K)   ⏱🎞📷

This product can compensate for time differences automatically by acquiring location information from the GPS system.

▶ On
   Compensates for time differences automatically.

   Off
   Does not compensates for time differences automatically.

Notes

• You must set the date and time on this product before using this product (p. 15).

• There may be discrepancies of a few seconds even if [Auto Area ADJ] is activated.

• This product may not compensate for the time difference automatically, depending on the country/region selected for this product. In this case, set [Auto Area ADJ] to [Off].

❓ Troubleshooting

If you run into any problems using this product, follow the steps below.

① Check the list (p. 72 to 80), and inspect this product.

▼

② Disconnect the power source, attach the power source again after about 1 minute, and turn this product on.

▼

③ Press RESET (p. 95) using a pointed object, and turn this product on. If you press RESET, all settings, including the clock setting, are reset.

▼

④ Contact your Sony dealer or local authorized Sony service facility.

Overall operations

The power does not turn on.

- Attach a charged battery pack to this product (p. 11).
- The plug of the AC Adaptor has been disconnected from the wall outlet (wall socket). Connect it to the wall outlet (wall socket) (p. 11).

This product does not operate even when the power is set to on.

- It takes a few seconds for this product to be ready to shoot after the power is turned on. This is not a malfunction.
- Disconnect the AC Adaptor from the wall outlet (wall socket) or remove the battery pack, then reconnect it after about 1 minute. If the functions still do not work, press RESET (p. 95) using a pointed object. (If you press RESET, all settings, including the clock setting, are reset.)
- The temperature of this product is extremely high. Turn off this product and leave it for a while in a cool place.
- The temperature of this product is extremely low. Leave this product with the power of this product on. If you still cannot operate this product, turn off this product and take it to a warm place. Leave this product there for a while, then turn on this product.

The menu settings have been changed automatically.

- While Intelligent Auto is active, some menu settings related to image quality will be changed automatically.
- The following menu items return to the default setting when you switch the photo recording mode to another mode.
  – [◻ Self-Timer]
  – [Tele Macro]
  – [White Balance]
  – [IRIS]
  – [Shutter Speed]
  – [Low Lux]
  – [Scene Selection]
  – [Auto Back Light]

This product gets warm.

- This product may become warm during operation. This is not a malfunction.

A rattling noise can be heard when you shake this product.

- If no noise is heard when this product is turned on and is in the movie/photo recording mode, the noise is produced by the movement of the internal lens. This is not a malfunction.

Intelligent Auto is canceled.

- The Intelligent Auto setting is canceled if you change the following settings:
  – [White Balance]
  – [Exposure]
  – [Focus]
  – [IRIS]
  – [Shutter Speed]
  – [AE Shift]
  – [White Balance Shift]
  – [Low Lux]
  – [Scene Selection]
  – [Tele Macro]
  – [🎞 SteadyShot]
  – [📷 SteadyShot]
  – [Auto Back Light]
  – [Face Detection]

Batteries/power sources

The power abruptly turns off.

- Use the AC Adaptor.
- Charge the battery pack (p. 11).

The CHG (charge) lamp does not light while the battery pack is being charged.

- Set the POWER switch to OFF (p. 11).
- Attach the battery pack to this product correctly (p. 11).
- Connect the power cord (mains lead) to the wall outlet (wall socket) properly.
- The battery charge is completed (p. 11).

The CHG (charge) lamp flashes while the battery pack is being charged.

- If the temperature of the battery pack is too high or too low, you may not be able to charge it (p. 88).
- Attach the battery pack to this product correctly (p. 11). If the problem persists, disconnect the AC Adaptor from the wall outlet (wall socket) and contact your Sony dealer. The battery pack may be damaged.

The remaining battery time indicator does not indicate the correct time.

- The ambient temperature is too high or too low. This is not a malfunction.
- The battery pack has not been charged enough. Fully charge the battery again. If the problem persists, replace the battery pack with a new one (p. 88).
- The indicated time may not be correct depending on the environment of use.

The battery pack is quickly discharged.

- The ambient temperature is too high or low. This is not a malfunction.
- The battery pack has not been charged enough. Fully charge the battery again. If the problem persists, replace the battery pack with a new one (p. 88).

Viewfinder

Menu items are grayed out.

- You cannot select grayed items in the current recording/playback situation. Press Enter with a grayed item selected and check the reasons why you cannot select the item.
- There are some functions you cannot activate simultaneously.

The image in the viewfinder is not clear.

- Adjust the diopter using the right and left diopter adjustment dial until the image appears clearly.
- Adjust the width between the right and left viewfinder to fit your eyes (p. 15).
- Use [Viewfinder Adjust] (p. 68).
- Switch the viewfinder display mode to 2D by pressing FINDER 2D/3D (p. 21).

Viewing 3D movies makes you feel uncomfortable.

- Use [Viewfinder Adjust] (p. 68).
- Use [Auto 3D Lens Adjust] (p. 59).

Primary colors, such as red, blue, or green, shimmer in the viewfinder.

- You may see primary colors, red, blue, or green, shimmering in the viewfinder when you move your line of sight. This is not a malfunction. The shimmering colors will not be recorded on the memory card.

Memory card

Operations using the memory card cannot be performed.

- If you use the memory card formatted on a computer, format it again on this product (p. 65).

Images stored on the memory card cannot be deleted.

- The maximum number of images that you can delete on the index screen at one time is 100.
- You cannot delete the protected images.

The data file name is not indicated correctly or flashes.

- The file is damaged.
- The file format is not supported by this product (p. 87).

Recording

Refer also to "Memory card" (p. 74).

Pressing START/STOP or PHOTO does not record images.

- The playback screen is displayed. Press MODE to turn on the ▦ (Movie) or ◘ (Photo) lamp (p. 22).
- This product is recording the image you have just shot on the memory card. You cannot make new recording during this period.
- The memory card is full. Delete unnecessary images (p. 34).
- Total number of movie scenes or photos exceeds the recordable capacity of this product. Delete unnecessary images (p. 34).
- The temperature of this product is extremely high. Turn off this product and leave it for a while in a cool place.
- The temperature of this product is extremely low. Turn off this product and take it to a warm place. Leave this product there for a while, then turn on this product.

Photos cannot be recorded.

- You cannot record photos while recording a movie. Press MODE to switch to the photo mode.
- When [2D/3D Mode Select] is set to [3D], you cannot record photos. Set [2D/3D Mode Select] to [2D].

The access lamp remains lit or flashing even if recording was stopped.

- This product is recording the scene you have just shot on the memory card.

The imaging field looks different.

- The imaging field may look different depending on the condition of this product. This is not a malfunction.

The actual recording time for movies is less than the expected recording time of the memory card.

• Depending on the recording conditions, the time available for recording may be shorter, for example when recording a fast moving object, etc.

This product stops operating.

• The temperature of this product is extremely high. Turn off this product and leave it for a while in a cool place.
• The temperature of this product is extremely low. Turn off this product and take it to a warm place. Leave this product there for a while, then turn on this product.
• If you keep applying vibration on this product, recording may stop.

There is a time difference between the point when START/STOP is pressed and the point that the recording movie is started or stopped actually.

• On this product, there may be a slight time difference between the point where you press START/STOP and the actual point that recording movie starts/stops. This is not a malfunction.

The auto focus does not function.

• Set [Focus] to [Auto] (p. 57).
• The recording conditions are not suitable for auto focus. Adjust the focus manually (p. 57).

SteadyShot does not function.

• Set [🎥 SteadyShot] to [Active] or [Standard] (p. 60), [📷 SteadyShot] to [On] (p. 60).
• Even if [🎥 SteadyShot] is set to [Active] or [Standard], [📷 SteadyShot] to [On], this product may not be able to compensate for excessive vibrations.

• You may not recognize the effect when you use the large magnification.

The subjects passing by the screen very fast appear crooked.

• This is called the focal plane phenomenon. This is not a malfunction. Because of the way the image device (CMOS sensor) reads out image signals, the subjects passing by the lens rapidly might appear crooked depending on the recording conditions.

Horizontal stripes appear on the images.

• This occurs when recording images under a fluorescent lamp, sodium lamp, or mercury lamp. This is not a malfunction.

Black bands appear when you record a TV screen or computer screen.

• Set [🎥 SteadyShot] to an option except for [Active] (p. 60).

Sound is not recorded correctly.

• If you disconnect an external microphone, etc. during recording movies, sound may not be recorded correctly.
• Connect the microphone again in the same way as when you start recording movies.

Playback

Images cannot be played back.

• Images recorded on other devices may not be played back. This is not a malfunction.
• When [2D/3D Mode Select] is set to [3D], movies recorded with 2D cannot be played back.

Photos cannot be played back.

• Photos cannot be played back if you have modified files or folders, or have edited the data on a computer. (The file name flashes in that case.) This is not a malfunction.

❓ is indicated on a thumbnail.

• This may appear on an image recorded on other devices, edited on a computer, etc.
• You removed the AC Adaptor or the battery pack while the memory card icon at the top right corner of the screen flashes, or before the access lamp is turned off after recording. This may damage your image data and ❓ is displayed.

🔁 is indicated on a thumbnail.

• The image data base file may be damaged. Check the data base file by selecting MENU (MENU) → [Setup] → [🔁 (🔁 Media Settings)] → [Repair Img. DB F.]. If it still appears, delete the image with 🔁 (p. 34).

No sound or only a quiet sound is heard during playback.

• Turn up the volume (p. 25).
• When you record sound with [Micref Level] (p. 61) set to [Low], the recorded sound may be difficult to hear.

Playing back images stored on memory card on other devices

Images cannot be played back or the memory card is not recognized.

• The playback device does not support playing back memory cards (p. 3).

Editing movies/photos on this product

Unable to edit.

• Unable to edit because of the condition of the image.

A movie cannot be divided.

• A movie that is too short cannot be divided.
• A protected movie cannot be divided.

Playback on the TV

Neither image nor sound is played on the connected TV.

• When you are using a component A/V cable, set [Component] according to the requirements of the connected device (p. 67).
• When you are using the component video plug, make sure the red and white plugs of the A/V connecting cable are connected (p. 27).
• Images are not output from the HDMI OUT jack, if copyright protection signals are recorded in the images.
• When you are using the S VIDEO plug, make sure the red and white plugs of the A/V connecting cable are connected (p. 28).

The top, bottom, right, and left edges of images are trimmed slightly on a connected TV.

• The screen of this product can display recording images across the entire screen (full pixel display). However, this may cause slight trimming of the top, bottom, right, and left edges of images when played back on a TV which is not compatible with full pixel display.

- It is recommended you record images using the outer frame of [Guide Frame] (p. 62) as a guide.

The image appears distorted on the 4:3 TV.

- This happens when viewing a recorded image on a 4:3 TV. Set [TV Type] correctly (p. 66) and play back the image.

Black bands appear at the top and bottom of the screen of the 4:3 TV.

- This happens when viewing a recorded image on a 4:3 TV. This is not a malfunction.

Copying/Connecting to other devices

Images are not copied correctly.

- You cannot copy images using the HDMI cable.
- The A/V connecting cable is not connected properly. Make sure to connect the cable to the input jack of another device (p. 49).

Connecting to a computer

"PMB" cannot be installed.

- Check the computer environment or installation procedure required to install "PMB."

"PMB" does not work correctly.

- Quit "PMB" and restart your computer.

This product is not recognized by the computer.

- Disconnect devices from the USB jack of the computer other than the keyboard, mouse, and this product.
- Disconnect the USB cable from the computer and this product, and restart the computer, then connect the computer and this product again in the correct order.

Self-diagnosis display/ Warning indicators

If indicators appear on the screen, check the following.
If the problem persists even after you have tried to fix a couple of times, contact your Sony dealer or local authorized Sony service facility. In this case, when you contact them, give them all the numbers of the error code beginning with C or E.

C:04:00
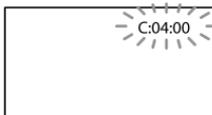
C:(or E:) □□:□□ (Self-diagnosis display)

C:04:□□
- The battery pack is not an "InfoLITHIUM" battery pack (V series). Use an "InfoLITHIUM" battery pack (V series) (p. 88).
- Connect the DC plug of the AC Adaptor to the DC IN jack of this product securely (p. 11).

C:06:□□
- The battery pack temperature is high. Change the battery pack or place it in a cool place.

C:13:□□ / C:32:□□
- Remove the power source. Reconnect it and operate this product again.

E:□□:□□
- Follow the steps from ② on page 72.

⌦ (Battery level warning)
- The battery pack is nearly used up.
- Depending on the operating environment or battery conditions, ⌦ may flash, even if there are about 20 minutes remaining.

▲⌁⌁ (Warning indicator pertaining to battery pack temperature)
- The battery pack temperature is high. Change the battery pack or place it in a cool place.

HDMI⊘ (Warning indicator pertaining to HDMI output stopped by overheating)
- Because the temperature of this product has reached a level where HDMI output has stopped, no image is displayed on the connected monitor, etc. Leave this product until the temperature decreases. However, you can continue recording on this product.

⌦ (Warning indicator pertaining to memory card)

Slow flashing
- Free spaces for recording images are running out. For the type of memory card you can use with this product, see page 18.

Fast flashing
- There are not enough free spaces for recording images. After storing the images on other media (p. 43), delete unnecessary images, or format the memory card (p. 65).
- The image database file may be damaged. Check the database file by selecting MENU (MENU) → [Setup] → [(Media Settings)] → [Repair Img. DB F.].

⌦ (Warning indicator pertaining to memory card formatting)
- The memory card is damaged.
- The memory card is not formatted correctly (p. 65).

⌦ (Warning indicator pertaining to incompatible memory card)
- Incompatible memory card is inserted (p. 18).

⌦⊶ (Warning indicator pertaining to the write-protect of the memory card)
- The memory card is write-protected.
- Access to the memory card was restricted on another device.

⚠ (Warning indicator pertaining to the external media device)

- The image database file may be damaged. Check the database file by selecting **MENU** (MENU) → [Setup] → [🗂 (🗂 Media Settings)] → [Repair Img. DB F.].

⚠ (Warning indicator pertaining to formatting of the external media device)

- The external media device is damaged.
- The external media device is not formatted correctly.

〘📷〙 (Warning indicator pertaining to camera-shake warning)

- This product is unsteady, so camera-shake easily occurs. Hold this product steady with both hands and record the image. However, note that the camera-shake warning indicator does not disappear.

📷 (Warning indicator pertaining to photo recording)

- The memory card is full.
- Photos cannot be recorded during processing. Wait for a while, then record.

💡 Tips

- You may hear a melody when some warning indicators appear on the screen.

Description of warning messages

If messages appear on the screen, follow the instructions.

Memory card

Data error.

- An error occurred during reading or writing the memory card in this product.

- This may occur when you keep applying shock on this product.
- Movies recorded on other devices may not be played back.

Inconsistencies found in image database file. Do you want to repair the image database file?
Inconsistencies found in image database file. Cannot record or play HD movies. Do you want to repair the image database file?

- You cannot record or play back movies because no movie management information exists. If you select **OK**, new management information is created and you can record or play back movies.

Inconsistencies found in the image database file. Back up and recover. Recover, then import using the included PC software.

- Since the database information of high definition image quality movies has been damaged, there are inconsistencies between the information in the database and the information in the file. Select **OK** to back up the high definition image quality movies and repair the database file. You cannot see the backed-up movies on this product. By connecting this product to a computer after repairing the database, you can import backed-up high definition image quality movies to the computer using the supplied "PMB" software installed on the computer. However, it is not guaranteed that all movies can be imported to the computer.

Buffer overflow. Writing to the media was not completed in time.

- You have performed recording and erasing operations repeatedly, or a memory card that has been formatted by other device is used. Copy and take data backup to other device (such as a computer), and then format the memory card on this product (p. 65).
- The size of the inserted memory card is not sufficient for copying the movie(s). Use the recommended memory card (p. 18).

Recovering data.

- This product tries to recover data automatically if the data writing was not performed properly.

Cannot recover data.

- Writing data onto the media of this product has failed. Attempts were made to recover the data, but they were unsuccessful.

⊗ Reinsert the memory card.

- Reinsert the memory card a few times. If even then the indicator flashes, the memory card could be damaged. Try with another memory card.

Cannot recognize this memory card. Format and use again.

- Format the memory card (p. 65). Note that if you format the memory card, all the recorded movies and photos are deleted.

⊠ Still picture folder is full. Cannot record still pictures.

- You cannot create folders exceeding 999MSDCF. You cannot create or delete created folders using this product.
- Format the memory card (p. 65), or delete folders using your computer.

This memory card may not be able to record or play movies.

- Use a memory card recommended for this product (p. 18).

This memory card may not be able to record or play images correctly.

- Use a memory card recommended for this product (p. 18).

Do not eject the memory card during writing. Data may be damaged.

- Reinsert the memory card, and follow the instructions on the screen.

External media cannot execute functions.

- Check the database file by selecting MENU (MENU) → [Setup] → [🎞 (🎞 Media Settings)] → [Repair Img. DB F.].
- If the message still appears, reconnect the external media device, then format it. Note that if you format the external media device, all the recorded movies and photos are deleted.
- If you cannot format the external media device, the external media device may be incompatible with this product, or damaged. Replace it with a new one.

Other

Maximum number of images already selected.

- You can select only 100 images at one time for:
  – Deleting movies/photos
  – Protecting movies/photos, or releasing the protection
  – Copying movies/photos

Recording time of movies/number of recordable photos

Expected operating time with each battery pack

Recording time

Approximate time available when you use a fully charged battery pack.

2D

(unit: minute)

Battery pack	Continuous recording time	Typical recording time
NP-FV70	180	90
NP-FV100	360	180

3D

(unit: minute)

Battery pack	Continuous recording time	Typical recording time
NP-FV70	150	75
NP-FV100	305	150

Monitoring time

Approximate time available when you use a fully charged battery pack.

2D

(unit: minute)

Battery pack	Continuous monitoring time
NP-FV70	195
NP-FV100	395

3D

(unit: minute)

Battery pack	Continuous monitoring time
NP-FV70	185
NP-FV100	370

Playing time

Approximate time available when you use a fully charged battery pack.

(unit: minute)

Battery pack	2D	3D
NP-FV70	290	250
NP-FV100	580	500

- Each operating time in the 2D mode is measured with [🎞 REC Mode] set to [Standard $\overline{\text{HQ}}$].
- Typical recording time shows the time when you repeatedly start/stop recording, switch the MODE lamp, and zoom.
- Times measured when using this product at 25 °C (77 °F). 10 °C to 30 °C (50 °F to 86 °F) is recommended.
- The recording, monitoring, and playback time will be shorter when you use this product in low temperatures.
- The recording, monitoring, and playback time will be shorter depending on the conditions under which you use this product.
- The remaining battery indicator (p. 93) shows the expected recording and playing time.

Expected recording time of movies

Memory card

(unit: minute)

	2 GB	4 GB	8 GB	16 GB	32 GB
3D	9 (9)	15 (15)	35 (35)	75 (75)	150 (150)
PS	9 (9)	15 (15)	35 (35)	75 (75)	150 (150)
FX	10 (10)	20 (20)	40 (40)	90 (90)	180 (180)
FH	10 (10)	30 (30)	60 (60)	120 (120)	245 (245)
HQ	25 (20)	50 (40)	105 (80)	215 (165)	440 (330)
LP	45 (35)	90 (75)	190 (155)	380 (310)	770 (630)

- Each number is measured when the Sony's memory card is used.

⏱ Notes
- The recordable time and the available monitoring time may vary depending on the recording conditions and the subject, [🎬 REC Mode], and [🎬 Frame Rate] (p. 54).
- The number in ( ) is the minimum recordable time.

💡 Tips
- You can record movies of a maximum of 3,999 scenes with 3D, 3,999 scenes with 2D.
- The maximum continuous recordable time of a movie is as follows.
  - 2D: about 13 hours
  - 3D: about 6 hours 30 minutes
- This product uses the VBR (Variable Bit Rate) format to automatically adjust image quality to suit the recording scene. This technology causes fluctuations in the recording time of the media. Movies containing quickly moving and complex images are recorded at a higher bit-rate, and this reduces the overall recording time.

Expected number of recordable photos

Memory card

	16:9 5.3M / ⌊5.3M	**4:3** 7.1M / ⌊7.1M
2 GB	620	560
4 GB	1250	1100
8 GB	2500	2250
16 GB	5000	4550
32 GB	10000	9200

- Each number is measured when the Sony's memory card is used.
- The number of recordable photos of memory card shown is for both the maximum image size of this product and the default image size. The actual number of recordable photos is displayed on the screen during recording (p. 93).
- The number of recordable photos of memory card may vary depending on the recording conditions.

⏱ Notes
- The unique pixel array of Sony's ClearVid and the image processing system allow still image resolution equivalent to the sizes described.

💡 Tips
- The following list shows the bit-rate, pixels and aspect ratio of each recording mode (movie + audio, etc.).
  - 3D movie:
    Max. 28 Mbps 1,920 × 1,080 pixels/16:9
  - 2D movie:
    PS: Max. 28 Mbps 1,920 × 1,080 pixels/16:9
    FX: Max. 24 Mbps 1,920 × 1,080 pixels/16:9
    FH: Approx. 17 Mbps (average) 1,920 × 1,080 pixels/16:9
    HQ: Approx. 9 Mbps (average) 1,440 × 1,080 pixels/16:9
    LP: Approx. 5 Mbps (average) 1,440 × 1,080 pixels/16:9

- The photo recording pixels and the aspect ratio.
  – Photo recording mode:
    $3,072 \times 2,304$ dots/4:3
    $3,072 \times 1,728$ dots/16:9
    $1,600 \times 1,200$ dots/4:3
    640×480 dots/4:3

Using this product abroad

Power supply

You can use this product in any countries/ regions using the AC Adaptor supplied with this product within the AC 100 V to 240 V, 50 Hz/60 Hz range.

Viewing 3D movies

In countries/regions where 1080/60i (1080/50i) is supported, you can view 3D movies as recorded by connecting this product to a 3D compatible TV (or monitor) with an HDMI cable (sold separately).

Viewing high definition image quality movies

In countries/regions where 1080/60i (1080/50i) is supported, you can view the movies with the same high definition image quality as that of the recorded movies. You need a NTSC (or PAL)-system-based and 1080/60i (1080/50i) compatible TV (or monitor) with component and AUDIO/ VIDEO input jacks, or HDMI input jacks. The HDMI cable (sold separately) or a component A/V cable (supplied with DEV-5K) must be connected.

Viewing standard definition image quality movies

To view standard definition image quality movies, you need a NTSC (or PAL)-system-based TV with AUDIO/VIDEO input jacks. An A/V connecting cable must be connected.

Watching the recorded movies on a TV

To watch recorded movies on a TV, record movies after selecting the appropriate [60i/50i Sel] setting for the TV color system of the country/region where you are using this product.

Countries/regions where you need to set [60i/50i Sel] to [60i (NTSC)]

Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Guyana, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the USA, Venezuela, etc.

Countries/regions where you need to set [60i/50i Sel] to [50i (PAL)]

Argentina, Australia, Austria, Belgium, Bulgaria, Brazil, China, Czech Republic, Denmark, Finland, France, Germany, Guiana, Holland, Hong Kong, Hungary, Iran, Iraq, Italy, Kuwait, Malaysia, Monaco, New Zealand, Norway, Paraguay, Poland, Portugal, Russia, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, Ukraine, United Kingdom, Uruguay, etc.

Setting to the local time

You can easily set the clock to the local time by setting a time difference when using this product abroad. Select MENU (MENU) → [Setup] → [⊕ (⊕ Clock Settings)] → [Date & Time Setting] → [Summer Time] and MENU (MENU) → [Setup] → [⊕ (⊕ Clock Settings)] → [Area Setting] (p. 70).

DEV-5/5K

When [Auto Clock ADJ] and [Auto Area ADJ] are set to [On], the clock is set to the local time automatically by the GPS function (p. 71).

World time difference

Time-zone differences	Area setting
GMT	Lisbon, London
+01:00	Berlin, Paris
+02:00	Helsinki, Cairo, Istanbul
+03:00	Nairobi
+03:30	Tehran
+04:00	Moscow, Abu Dhabi, Baku
+04:30	Kabul
+05:00	Karachi, Islamabad
+05:30	Calcutta, New Delhi
+06:00	Almaty, Dhaka
+06:30	Yangon
+07:00	Bangkok, Jakarta
+08:00	Hong Kong, Singapore, Beijing
+09:00	Tokyo, Seoul
+09:30	Adelaide, Darwin
+10:00	Melbourne, Sydney
+11:00	Solomon Is
+12:00	Fiji, Wellington, Eniwetok, Kwajalein
−11:00	Samoa
−10:00	Hawaii
−09:00	Alaska
−08:00	Los Angeles, Tijuana
−07:00	Denver, Arizona
−06:00	Chicago, Mexico City
−05:00	New York, Bogota
−04:00	Santiago
−03:30	St. John's
−03:00	Brasilia, Montevideo
−02:00	Fernando de Noronha
−01:00	Azores, Cape Verde Is.

Maintenance and precautions

About the AVCHD format

What is the AVCHD format?

The AVCHD format is a high definition digital video camera format used to record a high definition signal using efficient data compression coding technology. The MPEG-4 AVC/H.264 format is adopted to compress video data, and the Dolby Digital or Linear PCM system is used to compress audio data.
The MPEG-4 AVC/H.264 format is capable of compressing images at higher efficiency than that of the conventional image compressing format.
The MPEG-4 MVC/H.264 format is adopted to compress 3D video data in the AVCHD format Ver. 2.0 for the 3D and 60p/50p recording.

- As the AVCHD format uses a compression coding technology, the picture may be disturbed in scenes where picture, field angles or brightness, etc. change drastically, but this is not a malfunction.

Recording and playback on this product

Based on the AVCHD format, this product records and plays with the high definition image quality.

Video signal*: MPEG-4 AVC/H.264 1920 × 1080/60p (50p), 1920 × 1080/60i (50i), 1440 × 1080/60i (50i)
MPEG-4 MVC/H.264 1920 × 1080/60i (50i)
Audio signal: Dolby Digital 2ch
Recording media: memory card

* Data recorded in AVCHD format other than the above mentioned cannot be played on this product.

About GPS (DEV-5/5K)

The GPS (Global Positioning System) is a system that calculates geographical location from highly accurate US space satellites. This system allows you to pinpoint your exact location on the earth. The GPS satellites are located in 6 orbits, 20,000 km above the earth. The GPS system consists of 24 or more GPS satellites. A GPS receiver receives radio signals from the satellites, and calculates the current location of the receiver based on the orbital information (almanac data) and travel time of the signals, etc.
Determining a location is called "triangulating." A GPS receiver can determine the location's latitude and longitude by receiving signals from 3 or more satellites.

- As the positions of GPS satellites vary constantly, it may take longer to determine the location or the receiver may not be able to determine the location at all, depending on the location and time you use this product.
- "GPS" is a system for determining geographic location by triangulating radio signals from GPS satellites. Avoid using this product in places where radio signals are blocked or reflected, such as a shadowy place surrounded by buildings or trees, etc. Use this product in open sky environments.
- You may not be able to record location information at locations or in situations where radio signals from the GPS satellites do not reach this product as follows.
  – In tunnels, indoors or under the shade of buildings.
  – Between tall buildings or at narrow streets surrounded by buildings.

  – In underground locations, locations surrounded by dense trees, under an elevated bridge, or in locations where magnetic fields are generated, such as near high voltage cables.
  – Near devices that generate radio signals of the same frequency band as this product: near 1.5 GHz band mobile telephones, etc.

On triangulating errors

- If you move to another location right after turning the power switch to ON, it may take a longer time for this product to start triangulating, compared to when you stay in the same place.
- Error caused by the position of GPS satellites
  This product automatically triangulates your current location when this product receives radio signals from 3 or more GPS satellites. The triangulating error allowed by the GPS satellites is about 10 m (33 feet). Depending on the environment of the location, the triangulating error can be greater. In this case, your actual location may not match the location on the map based on the GPS information. Meanwhile, the GPS satellites are controlled by the United States Department of Defense, and the degree of accuracy may be changed intentionally.
- Error during the triangulating process
  This product acquires location information periodically during triangulating. There is a slight time difference between when the location information is acquired and when the location information is recorded on an image, therefore, the actual recording location may not match exactly the location on the map based on the GPS information.

On the restriction of use of GPS

- Use GPS in accordance with the regulations of the situation, the countries/regions of use.

On the geographic coordinate system

- The "WGS-84" geographic coordinate system is used.

About the memory card

- A memory card formatted by a computer (Windows OS/Mac OS) does not have guaranteed compatibility with this product.
- Data read/write speed may vary depending on the combination of the memory card and memory card compliant product you use.
- Damaged or lost data may occur in the following cases (the data will not be compensated for):
  – If you eject the memory card, or turn off this product while this product is reading or writing image files on the memory card (while the access lamp is lit or flashing)
  – If you use the memory card near magnets or magnetic fields
- It is recommended that you make a back-up of important data on the hard disk of a computer.
- Do not attach a label or the like on memory card or memory card adaptor.
- Do not touch, or allow metallic objects to come into contact with the terminals.
- Do not bend, drop or apply strong force to the memory card.
- Do not disassemble or modify the memory card.
- Do not let the memory card get wet.
- Keep the memory card out of the reach of small children. There is danger that a child might swallow it.
- Do not insert anything other than the compliant size of memory card into the memory card slot. Doing so may cause a malfunction.
- Do not use or keep the memory card in the following locations:
  – Places subject to extremely high temperature, such as a car parked outside in the summer
  – Places under direct sunlight
  – Places with extremely high humidity or subject to corrosive gases

On the memory card adaptor

- When using memory card with memory card compliant device inserting memory card into memory card adaptor, make sure the memory card is inserted facing in the correct direction. Note that improper use may cause a malfunction.

On image data compatibility

- Image data files recorded on memory card by this product conform to the "Design rule for Camera File system" universal standard established by the JEITA (Japan Electronics and Information Technology Industries Association).
- On this product, you cannot play back photos recorded on other devices (DCR-TRV900/ TRV900E or DSC-D700/D770) that do not conform to the universal standard. (These models are not sold in some regions.)
- If you cannot use memory cards that have been used with another device, format it with this product (p. 65). Note that formatting erases all information on the memory card.
- You may not be able to play back images with this product:
  – When playing back image data modified on your computer
  – When playing back image data recorded with other devices

About the "Memory Stick" media

Types of "Memory Stick" media	Recording/Playback
"Memory Stick Duo" media (with MagicGate)	—
"Memory Stick PRO Duo" media (Mark2)	✓
"Memory Stick PRO-HG Duo" media	✓

- This product supports parallel data transfer. However, the transfer speed may differ, depending on the type of media you use.
- This product cannot record or play data that uses "MagicGate" technology. "MagicGate" is a copyright protection technology that records and transfers the contents in an encrypted format.

About the "InfoLITHIUM" battery pack

This product operates only with an "InfoLITHIUM" V series battery packs NP-FV70/FV100.
"InfoLITHIUM" V series battery packs have the ⓘ *InfoLITHIUM* Ⓥ mark.

What is an "InfoLITHIUM" battery pack?

• An "InfoLITHIUM" battery pack is a lithium-ion battery pack that has functions for communicating information related to operating conditions between this product and an AC Adaptor/charger (sold separately).
• The "InfoLITHIUM" battery pack calculates the power consumption according to the operating conditions of this product, and displays the remaining battery time in minutes.
• The battery pack NP-FV70/FV100 is compatible with "ActiFORCE."
"ActiFORCE" is a new generation power system. Battery capacity, boost charge, and the speed and accuracy of battery time remaining calculations have been improved when compared with current "InfoLITHIUM" P-series battery.

To charge the battery pack

• Be sure to charge the battery pack before you start using this product.
• We recommend charging the battery pack in an ambient temperature of from 10 °C to 30 °C (50 °F to 86 °F) until the CHG (charge) lamp turns off. If you charge the battery pack outside of this temperature range, you may not be able to charge it efficiently.

To use the battery pack effectively

• Battery pack performance decreases when the ambient temperature is 10 °C (50 °F) or below, and the length of time you can use the battery pack becomes shorter. In that case, do one of the following to use the battery pack for a longer time.

– Put the battery pack in a pocket to warm it up, and install it on this product right before you start taking shots.
– Use a large capacity battery pack: NP-FV100 (supplied with DEV-5K).
• Have spare battery packs ready for 2 or 3 times the expected recording time, and make trial recordings before making the actual recording.
• Do not expose the battery pack to water. The battery pack is not water resistant.

About the remaining battery time indicator

• When the power goes off even though the remaining battery time indicator indicates that the battery pack has enough power to operate, charge the battery pack fully again. Remaining battery time will be indicated correctly. Note, however, that the battery indication will not be restored if it is used in high temperatures for a long time, or if left in a fully charged state, or when the battery pack is frequently used. Use the remaining battery time indication as a rough guide only.
• The ⏇ mark that indicates low battery flashes even if there are still 20 minutes of battery time remaining, depending on the operating conditions or ambient temperature.

About storage of the battery pack

• If the battery pack is not used for a long time, fully charge the battery pack and use it up on this product once a year to maintain proper function. To store the battery pack, remove it from this product and put it in a dry, cool place.
• To discharge the battery pack on this product completely, select **MENU** (MENU) → [Setup] → [🔧(🔧 General Settings)] → [A. Shut Off] → [Off], and leave this product in recording standby until the power goes off (p. 69).

About battery life

• Battery capacity decreases over time and through repeated use. If decreased usage time between charges becomes significant, it is probably time to replace it with a new one.

- Each battery's life is governed by storage, operating and environmental conditions.

About x.v.Color

- x.v.Color is a more familiar term for the xvYCC standard proposed by Sony, and is a trademark of Sony.
- xvYCC is an international standard for color space in video. This standard can express a wider color range than the currently used broadcast standard.

About handling of this product

On use and care

- Do not use or store this product and accessories in the following locations:
  - Anywhere extremely hot, cold or humid. Never leave them exposed to temperatures above 60 °C (140 °F), such as under direct sunlight, near heaters or in a car parked in the sun. They may malfunction or become deformed.
  - Near strong magnetic fields or mechanical vibration. This product may malfunction.
  - Near strong radio waves or radiation. This product may not be able to record properly.
  - Near AM receivers and video equipment. Noise may occur.
  - On a sandy beach or anywhere dusty. If sand or dust gets in this product, it may malfunction. Sometimes this malfunction cannot be repaired.
  - Near windows or outdoors, where the viewfinder, or the lens may be exposed to direct sunlight. This damages the screen.
- Operate this product on DC 6.8 V/7.2 V (battery pack) or DC 8.4 V (AC Adaptor).
- For DC or AC operation, use the accessories recommended in these operating instructions.
- Do not let this product get wet, for example, from rain or sea water. If this product gets wet, it may malfunction. Sometimes this malfunction cannot be repaired.

- If any solid object or liquid gets inside the casing, unplug this product and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling, disassembling, modifying, physical shock, or impact such as hammering, dropping or stepping on the product. Be particularly careful of the lens.
- Keep the screen closed when you are not using this product.
- Do not wrap this product with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- When disconnecting the power cord (mains lead), pull it by the plug and not the cord.
- Do not damage the power cord (mains lead) such as by placing anything heavy on it.
- Do not use a deformed or damaged battery pack.
- Keep metal contacts clean.
- If the battery electrolytic liquid has leaked:
  - Consult your local authorized Sony service facility.
  - Wash off any liquid that may have contacted your skin.
  - If any liquid gets in your eyes, wash with plenty of water and consult a doctor.

When not using this product for a long time

- To keep this product in optimum state for a long time, turn it on and let it run by recording and playing back images about once a month.
- Use up the battery pack completely before storing it.

Moisture condensation

If this product is brought directly from a cold place to a warm place, moisture may condense inside this product. This may cause a malfunction to this product.

- If moisture condensation has occurred Leave this product for about 1 hour without turning it on.

- Note on moisture condensation
  Moisture may condense when you bring this product from a cold place into a warm place (or vice versa) or when you use this product in a humid place as follows:
  – You bring this product from a ski slope into a place warmed up by a heating device.
  – You bring this product from an air conditioned car or room into a hot place outside.
  – You use this product after a squall or a shower.
  – You use this product in a hot and humid place.
- How to prevent moisture condensation
  When you bring this product from a cold place into a warm place, put this product in a plastic bag and seal it tightly. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

On handling the casing

- If the casing is soiled, clean this product body with a soft cloth lightly moistened with water, and then wipe the casing with a dry soft cloth.
- Avoid the following to avoid damage to the finish:
  – Using chemicals such as thinner, benzine, alcohol, chemical cloths, repellent, insecticide and sunscreen
  – Handling this product with above substances on your hands
  – Leaving the casing in contact with rubber or vinyl objects for a long period of time

About care and storage of the lens

- Wipe the surface of the lens clean with a soft cloth in the following instances:
  – When there are fingerprints on the lens surface
  – In hot or humid locations
  – When the lens is exposed to salty air such as at the seaside
- Store in a well-ventilated location subject to little dirt or dust.

- To prevent mold, periodically clean the lens as described above.

On charging the pre-installed rechargeable battery

This product has a pre-installed rechargeable battery to retain the date, time, and other settings even when this product is turned off. The pre-installed rechargeable battery is always charged while this product is connected to the wall outlet (wall socket) via the AC Adaptor or while the battery pack is attached. The rechargeable battery will be fully discharged in about 3 months if you do not use this product at all. Use this product after charging the pre-installed rechargeable battery.

However, even if the pre-installed rechargeable battery is not charged, this product operation will not be affected as long as you are not recording the date.

How to charge the pre-installed rechargeable battery

Connect this product to a wall outlet (wall socket) using the supplied AC Adaptor, and leave it with the device turned off for more than 24 hours.

Note on disposal/transfer of the memory card

Even if you delete data in the memory card or format the memory card on this product or a computer, you may not delete data from the memory card completely. When you give the memory card to somebody, it is recommended that you delete data completely using data deletion software on a computer. Also, when you dispose of the memory card, it is recommended that you destroy the actual body of the memory card.

On trademarks

- "AVCHD 3D/Progressive" and "AVCHD 3D/Progressive" logo are trademarks of Sony Corporation and Panasonic Corporation.
- "Memory Stick," "<img>," "Memory Stick Duo," "**MEMORY STICK DUO**," "Memory Stick PRO Duo," "**MEMORY STICK PRO DUO**," "Memory Stick PRO-HG Duo," "**MEMORY STICK PRO-HG DUO**," "MagicGate," "**MAGICGATE**," "MagicGate Memory Stick" and "MagicGate Memory Stick Duo" are trademarks or registered trademarks of Sony Corporation.
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- SDXC logo is a trademark of SD-3C, LLC.
- MultiMediaCard is a trademark of MultiMediaCard Association.

All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, ™ and ® are not mentioned in each case in this Handbook.

Notes on the License

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(i) ENCODE VIDEO IN COMPLIANCE WITH THE AVC STANDARD ("AVC VIDEO") AND/OR
(ii) DECODE AVC VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND
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On GNU GPL/LGPL applied software

The software that is eligible for the following GNU General Public License (hereinafter referred to as "GPL") or GNU Lesser General Public License (hereinafter referred to as "LGPL") are included in this product.
This informs you that you have a right to have access to, modify, and redistribute source code for these software programs under the conditions of the supplied GPL/LGPL.

Source code is provided on the web. Use the following URL to download it. When downloading the source code, select DEV-5 as the model for this product.
http://www.sony.net/Products/Linux/
We would prefer you do not contact us about the contents of source code.
Read "license2.pdf" in the "License" folder on the CD-ROM. You will find licenses (in English) of "GPL," and "LGPL" software.

To view the PDF, Adobe Reader is needed. If it is not installed on your computer, you can download it from the Adobe Systems web page:
http://www.adobe.com/

Screen indicators

Center

Left   Right

Bottom
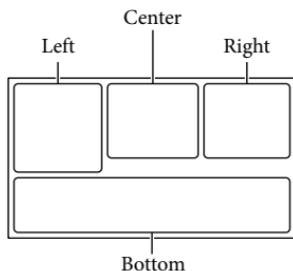
Left

Indicator	Meaning
MENU	MENU button (52)
⟳	Self-timer recording (60)
✕▮	GPS triangulating status (31)
🙂⊗ 👥 🙂	Face Detection (61)
🖐 ▲ 👤	Manual focus (57)
🌙 ⬥ ☀ ▲ 🐚 👤 🌅 🕯	Scene Selection (59)
☀ ⛅ ⛵	White Balance (56)
(🖐)	SteadyShot off (60)
WS	White Balance Shift (58)
T🌷	Tele Macro (60)
(COLOR)	x.v.Color (63)
✈	Destination (70)
👤 🐚 🖼 ▲ 🌙 🕯 🔦 🌷 🏃 🎇	Intelligent Auto (30)

Center

Indicator	Meaning
[STBY]/[REC]	Recording status (22)
⟳	Slide show set
⚠ ▨ (🖐) 🔋 ▲◨ HDMI⊘	Warning (78)
►	Playback mode (24)

Right

Indicator	Meaning
HD:60i **HQ**	Frame rate (60p (50p)/60i (50i)) and recording mode (PS/FX/FH/HQ/LP) (30)
60min ▰	Remaining battery (expected recording and playing time)
4:3 ▯7.1M 16:9 ▯5.3M 4:3 ▯1.9M 4:3 ▯VGA	Photo size (64)
▯	Recording/playback/editing media (18)
⛁	An external media device is connected (46)
0:00:00	Counter (hour:minute:second)
00min	Estimated recording remaining time
9999 ▨→▯	Approximate number of recordable photos and photo size
101 ►	Playback folder
100/112	Current playing movie or photo/Number of total recorded movies or photos
2D	2D record or playback
3D	3D record or playback

Bottom

Indicator	Meaning
▣	View Images button (24)
▮↓	Micref Level low (61)
▮	Low Lux (58)
◄▬▬▬►	Exposure (57)
EV	AE Shift (58)
500	Shutter Speed (58)
F1.8	IRIS (58)
AUTO	Intelligent Auto (30)
▤►	Slide show button

Parts and controls

Indicator	Meaning
⌇ 101-0005	Data file name (24)
⊶	Protected image (35)
⟨⟩	3D Depth Adjustment (26)
AUTO	Automatic (33)
MANUAL	Exposure is set manually. (33)

- Indicators and their positions are approximate and may differ from what you actually see.
- Some indicators may not appear, depending on the model.

Figures in ( ) are reference pages.
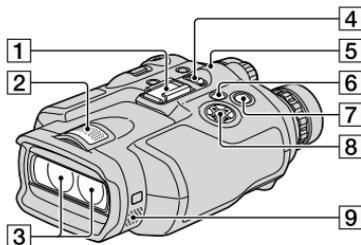
1 Accessory shoe
2 Built-in microphone
3 Lens
4 POWER switch (15)
5 CHG (charge) lamp (11)
6 ▶ (View Images) button (24)
7 START/STOP button (22)
8 ▲/▼/◀/▶/Enter buttons
9 Speakers
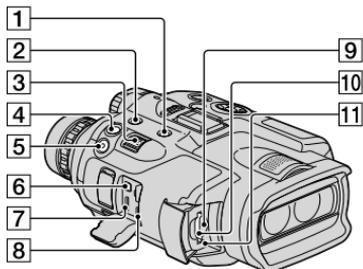
1 MODE button (22)

2 FINDER 2D/3D (display) button (21)

3 Power zoom lever (20)

4 PHOTO button (24)

5 START/STOP button (22)

6 A/V Remote Connector (26)

7 HDMI OUT jack (26)

8 ⌿ (USB) jack (46)

9 Memory card access lamp (19)
   While the lamp is lit or flashing, this product is reading or writing data.

10 Memory card slot (19)

11 RESET button
   Press RESET using a pointed object.
   Press RESET to initialize all the settings including the clock setting.
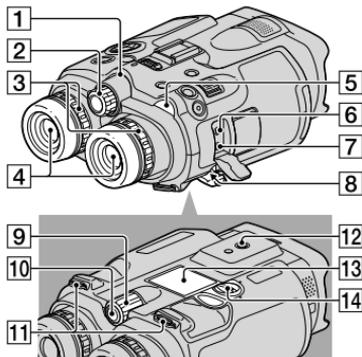
1 Camera recording lamp (69)
   The camera recording lamp lights up in red during recording. The lamp flashes when the remaining memory card capacity or battery power is low.

2 IPD ADJ dial (15)

3 Diopter adjustment dial (15)

4 Viewfinder

5 ▤ (Movie)/◻ (Photo) lamps (22)

6 MIC (PLUG IN POWER) jack

7 ⌒ (headphones) jack

8 DC IN jack (11)

9 MANUAL dial (32)

10 MANUAL button (32)

11 Strap mount (10)

12 Tripod receptacle
   Attach a tripod (sold separately) to the tripod receptacle using a tripod screw (sold separately: the length of the screw must be less than 5.5 mm (7/32 in.)).

13 Battery cover (11)

14 Battery cover lock (11)

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